The PHOTOFACT Servicer

SET 443 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ May 15, 1959

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

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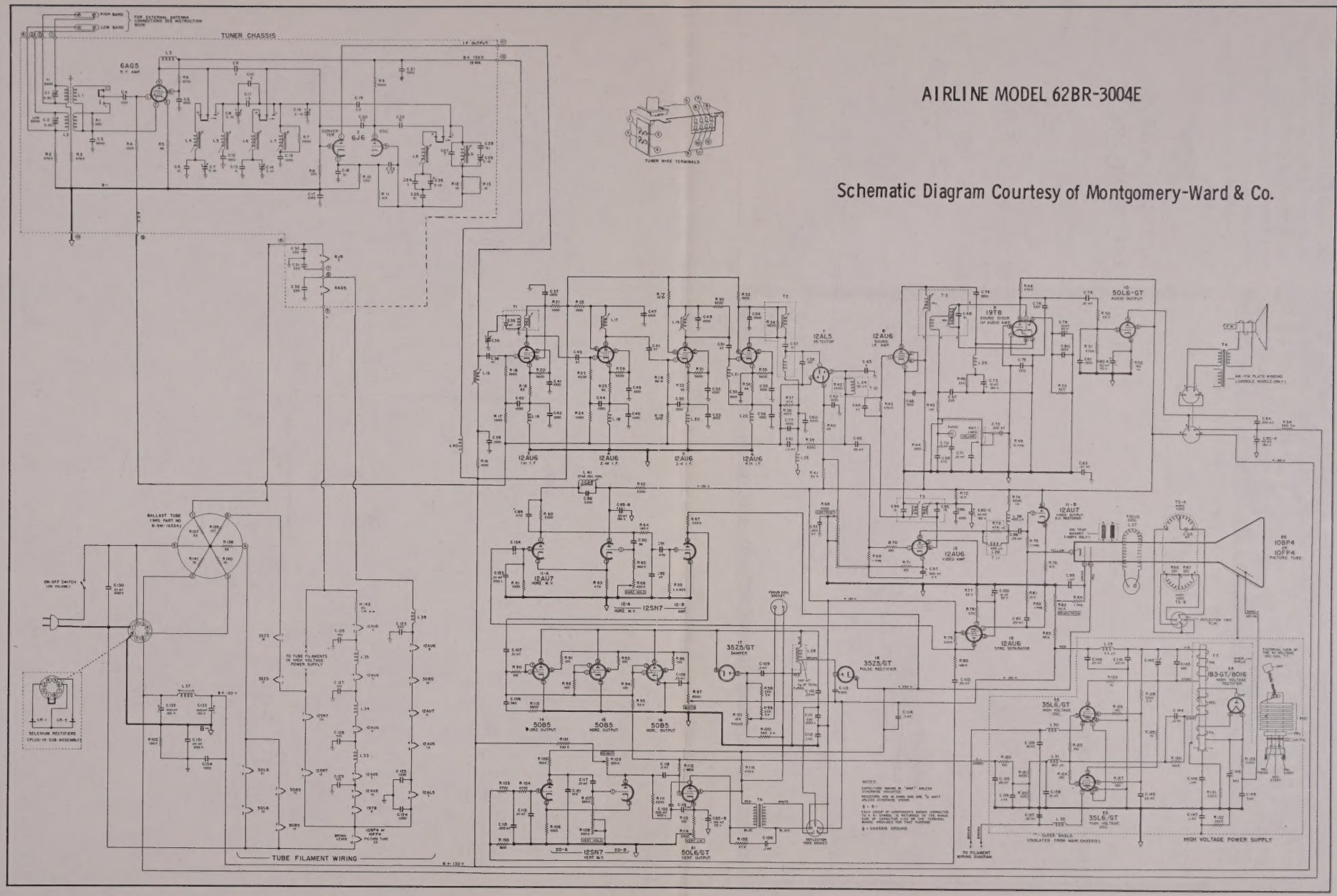
Airline Model 62BR-3004E

Webcor Models 1754, 1761, 1854, 1855, 1864(Ch. 14X263)

AIRLINE MODEL 62BR-3004E

Schematic Diagram Courtesy of Montgomery-Ward & Co.



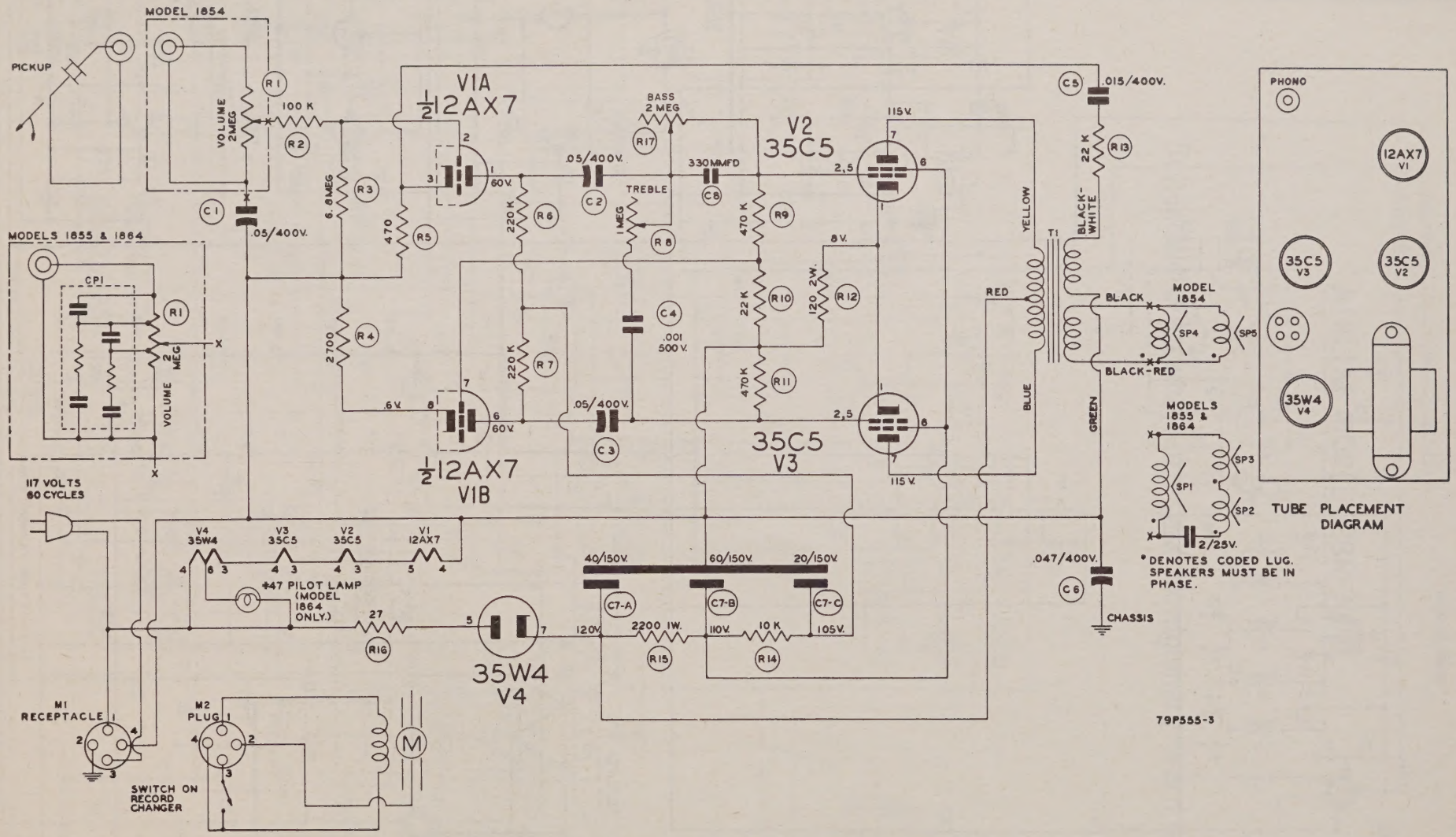


Figure 1. Circuit Diagram, 14X263 Preamp. and Power Amplifier used in Models 1854, 1855 and 1864.

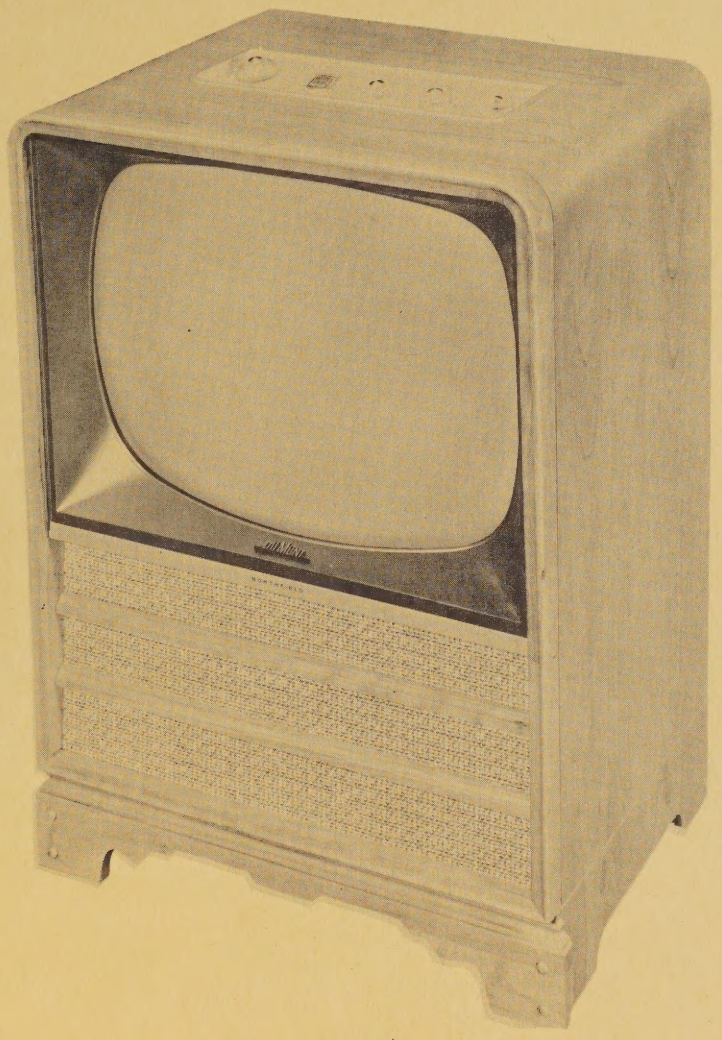
PHOTOFACT* Folder

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

DUMONT CHASSIS
RA-502, RA-503



MODEL NORTHFIELD 21 (Ch. RA-502)

DUMONT CHASSIS
RA-502, RA-503

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SET 443 FOLDER 1

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

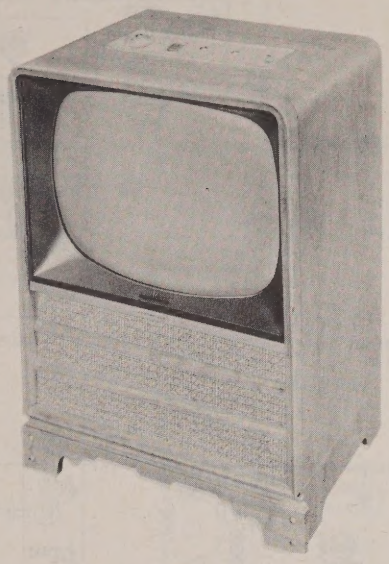
DUMONT CHASSIS RA-502, RA-503

DUMONT CHASSIS RA-502, RA-503

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL NORTHFIELD 21

1. Remove 7 push-on type knobs from the top.
2. Remove 5 wood screws holding rear cover. Remove the rear cover.
3. Remove picture tube socket, yoke plug, HV and speaker leads.
4. Remove 4 bottom chassis bolts.
5. Remove 2 wood screws holding top chassis brackets.
6. Remove 1 metal screw holding chassis on outside to control panel escutcheon.
7. Remove chassis from the rear.



MODEL NORTHFIELD 21 (Ch. RA-502)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Dumont	MODELS	Fairfield 21, Mansfield 21, Northfield 21, Richfield 21, Sheffield 17, Wakefield 21 (Ch. RA-502, RA-503)
MANUFACTURER	Dumont Television & Radio Corp., 35 Market St., East Paterson, N.J.		
TYPE SET	Television Receiver		
TUBES	VHF-Sixteen, UHF-Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	170 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs.

SAFETY GLASS REMOVAL

Remove 4 wood screws holding metal trim strip at bottom of safety glass. Tilt glass out at the bottom and remove.

AGC

The AGC may be varied by a Local-Distance switch. (For location, see tube placement chart.)

FOCUS

No provision is made to vary the focus on this receiver.

WIDTH

The width may be varied by a Width coil. (For location, see tube placement chart.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the Horizontal Hold at the center of its range and adjust the Horizontal Range until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENTS

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE DEVICE

A Circuit Breaker is used for LV power supply protection, and may be reset by depressing the reset button. (For location, see tube placement chart.)

CENTERING

Centering is accomplished by a centering device located behind the yoke.

PINCUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the 2 magnets so that all the sides are straight.

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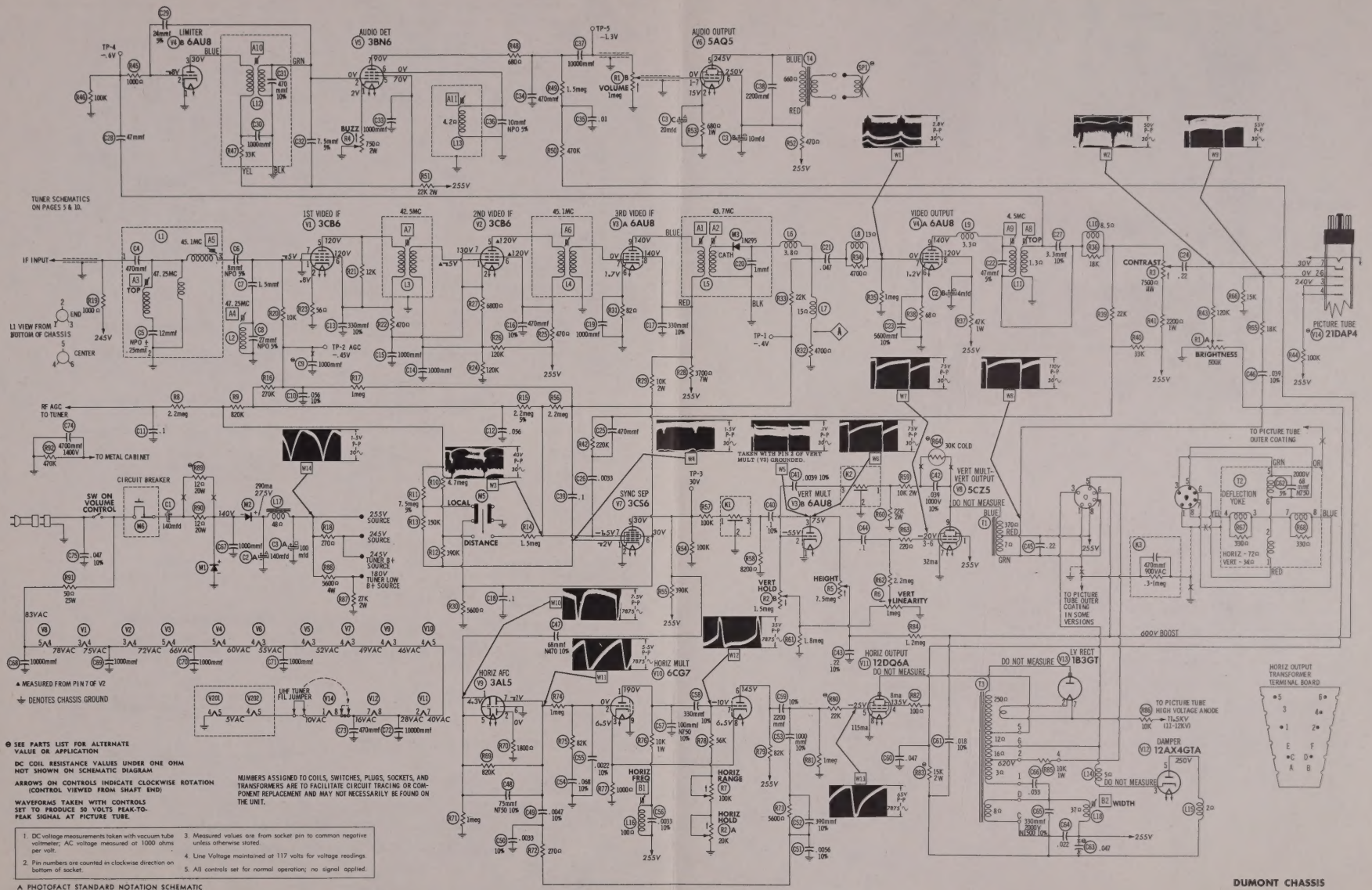
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J128

SET 443 FOLDER 1



DUMONT CHASSIS RA-502, RA-503

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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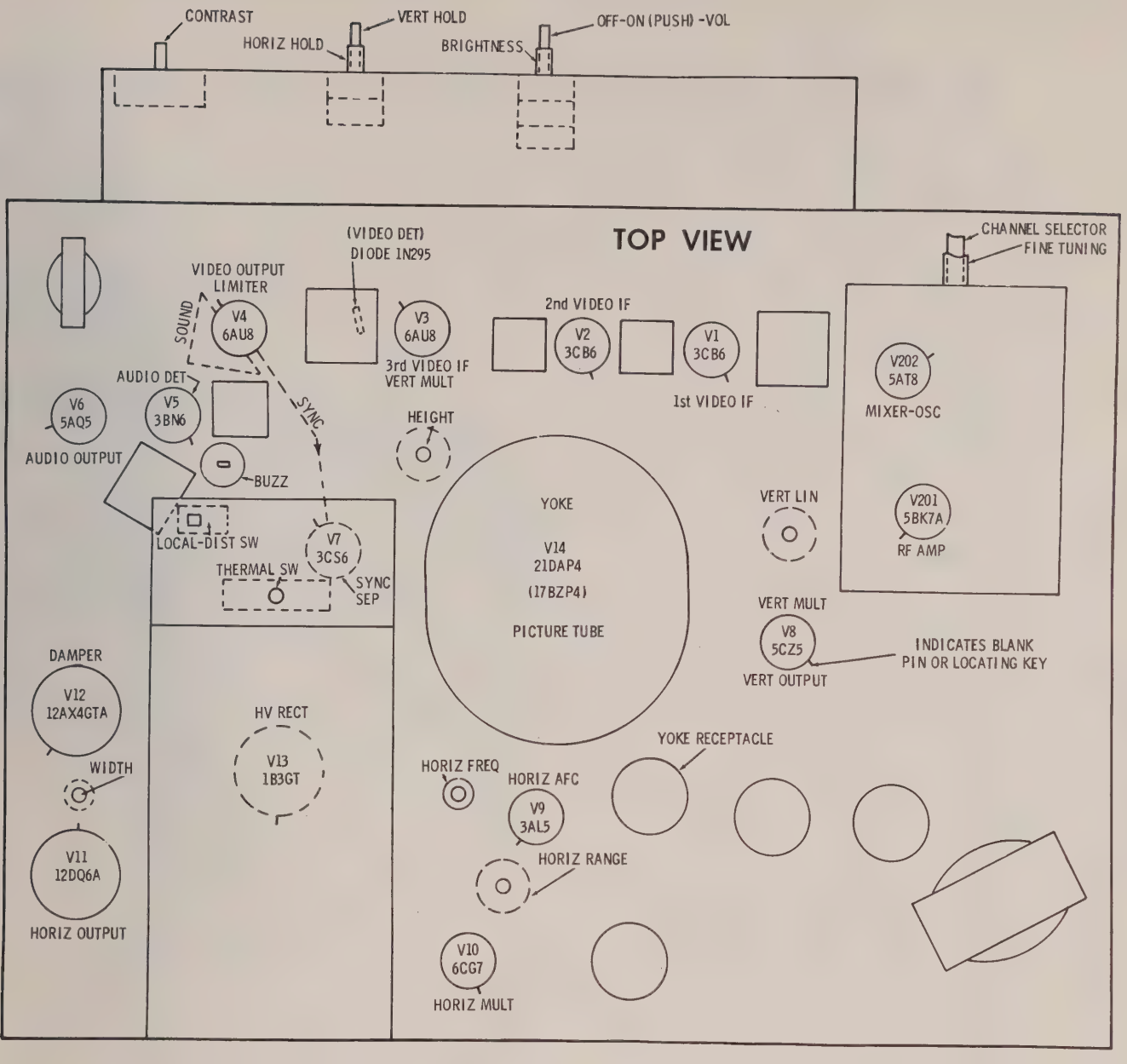
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

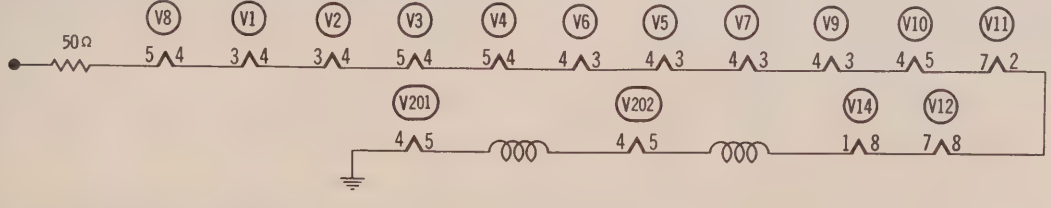
POWER SUPPLY FAILURE
No raster, no sound Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13, V14, Rectifiers (B+)
No vertical deflection V3, V8
Poor vert. linearity or foldover V3, V8
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifiers (B+)
Vert. off freq. V3, V8
Horiz. off freq. V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V5, V6

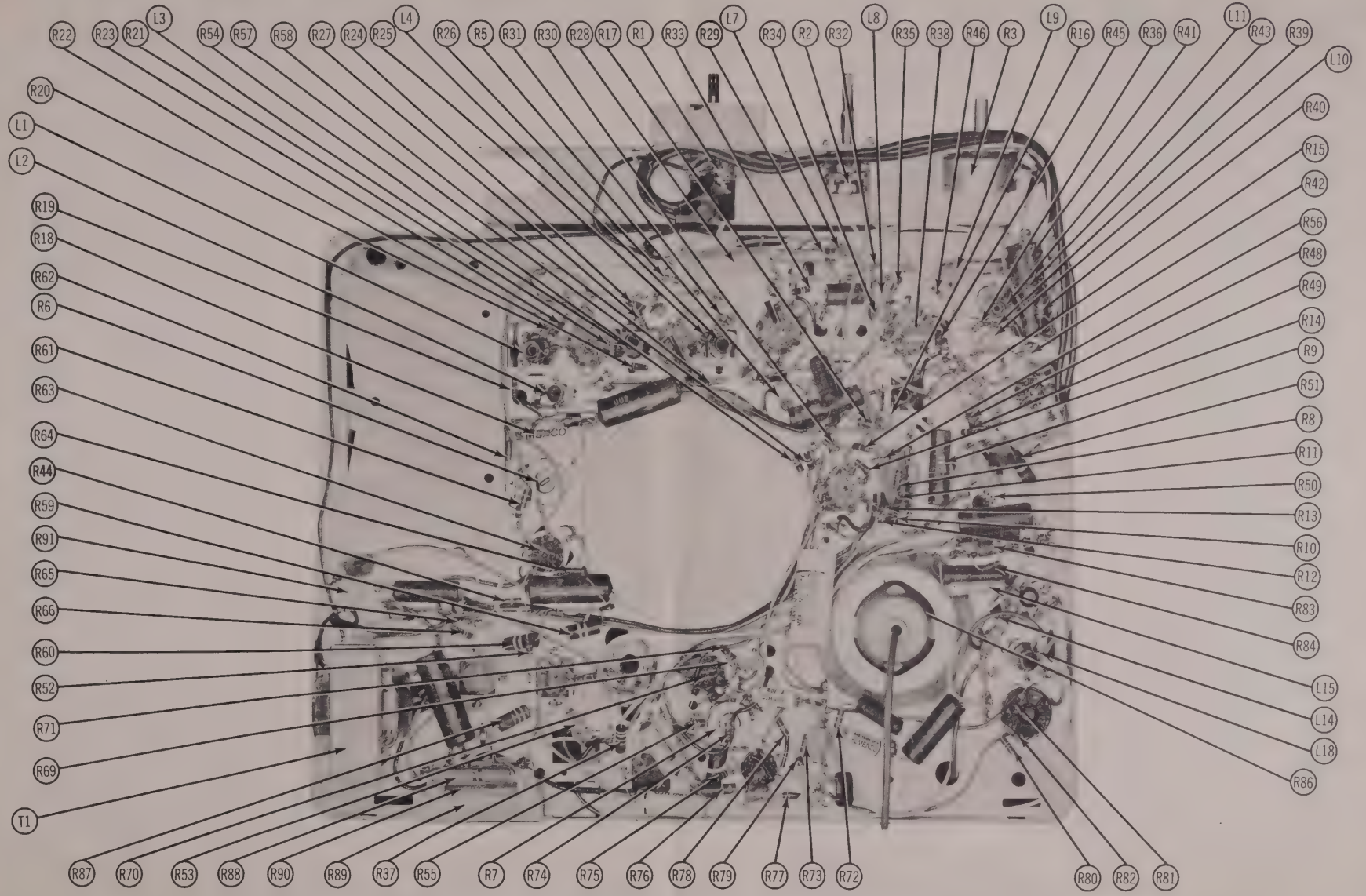
SYNC FAILURE
No vert. sync V7
No horiz. sync V7, V9
No vert. or horiz. sync V7

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)

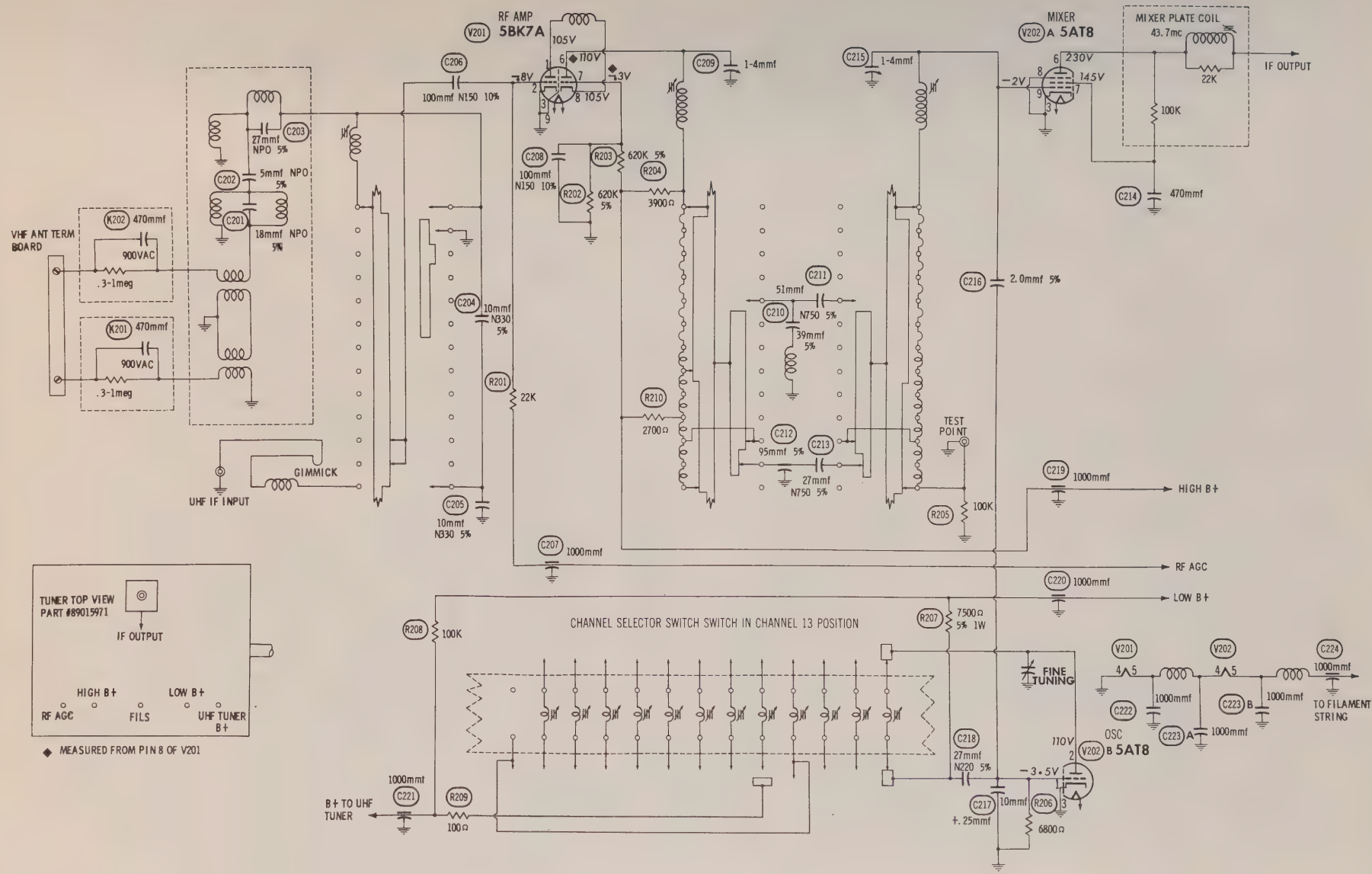


DUMONT CHASSIS RA-502, RA-503

FOLDER 1



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER with UHF provisions 89015971

DUMONT CHASSIS
RA-502, RA-503

TUNER PARTS LIST AND DESCRIPTIONS

89015971

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	5BK7A	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5AT8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	18		NPO 5%			TCZ-18	C10Q18C	CNO-418	5TCC-Q18S 5% *	
C202	5		NPO 5%		NPO-DI 5		C10V5C		5TCCB-V5S 5% *	
C203	27		NPO 5%			TCZ-27	C10Q27C	CNO-427	5TCC-Q27S 5% *	
C204	10		N330 5%			TCA-10				
C205	10		N330 5%			TCA-10				
C206	100		N150 10%							
C207	1000				EF-001	MFT-1000			503C-D1	
C208	100		N150 10%							
C209	1-4					829-4				
C210	39		5%		NPO-DI 39	TCZ-39	C10Q39C	CNO-439	5TCC-Q39S 5% *	
C211	51		N750 5%			TCN-51	C10Q51U		5TCU-Q51S 5% *	
C212	95		5%							
C213	27		N750 5%			TCN-27	C10Q27U	CN7-427	5TCU-Q27S 5% *	
C214	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C215	1-4					829-4				
C216	2.0		5%						5TCCB-V2S 5% *	
C217	10		±.25mmf			TCZ-10			5TCC-Q1S ±.25mmf *	
C218	27		N220 5%							
C219	1000				EF-001	MFT-1000			503C-D1	
C220	1000				EF-001	MFT-1000			503C-D1	
C221	1000				EF-001	MFT-1000			503C-D1	
C222	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C223A	1000				BPD-2X001	DD2-102	BYD6DD1	B-210	5HK-2D1	
B	1000							B-210		
C224	1000				EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DUMONT PART No.	NOTES
	OHMS	WATT		
R201	22K			
R202	620K 5%			
R203	620K 5%			
R204	3900Ω			
R205	100K			

ITEM No.	RATING		DUMONT PART No.	NOTES
	OHMS	WATT		
R206	6800Ω			
R207	7500Ω 5%	1		
R208	100K			
R209	100Ω			
R210	2700Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DUMONT PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf @ 900VAC, .3-1meg	88001930	Centralab Sprague	RC-471 AC1-1
K202	Antenna Isolation	470mmf @ 900VAC, .3-1meg	88001930	Centralab Sprague	RC-471 AC1-1

TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATORALIGNMENT

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

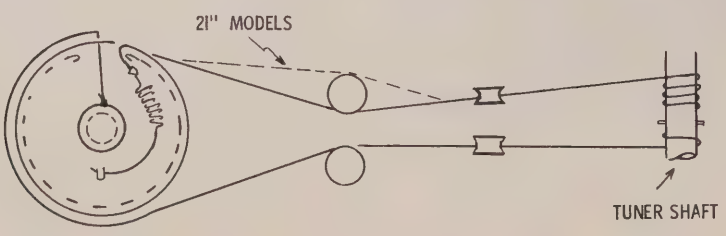
The individual channel adjustment screws are accessible one at a time thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



UHF DRIVE CORD STRINGING

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Disable the tuner oscillator by disconnecting the red lead from the tuner terminal board.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2528, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to TP-2. Positive to chassis.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Connect a clip lead from TP-1 to chassis.

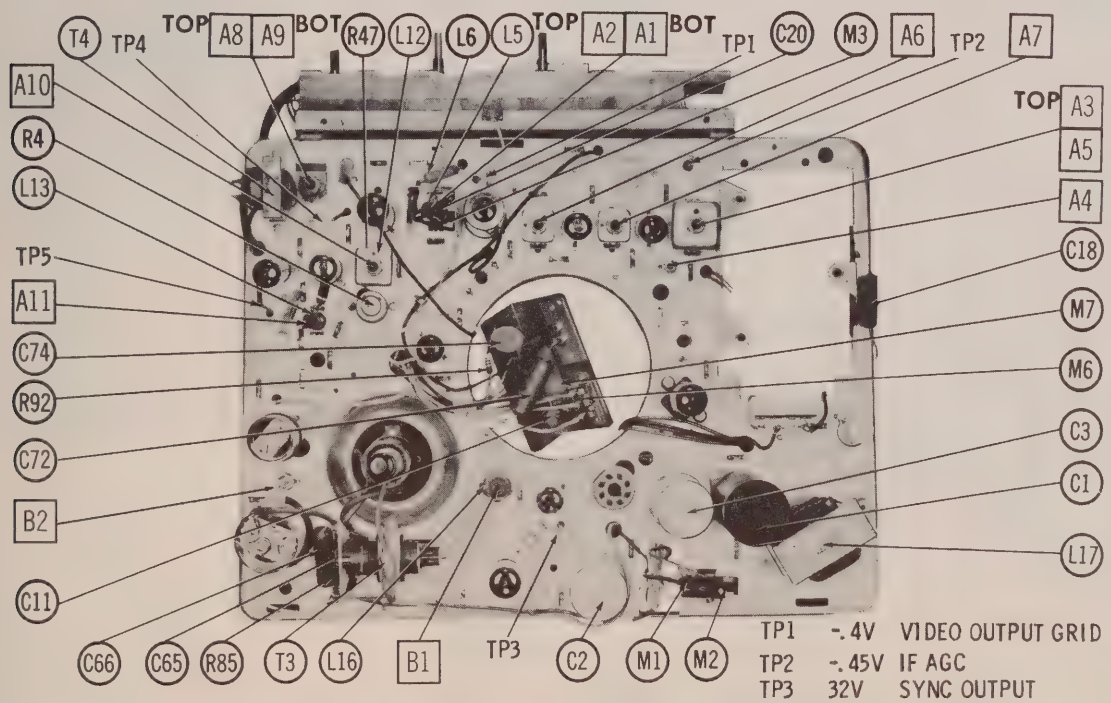
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	43.7MC (Unmod.)	13	DC probe to point (A). Common to chassis. (Across Video Det. Load)	A1, A2, and Mixer Plate Coil	Adjust for maximum deflection.
2.	"	"	47.25MC	"	"	A3, A4	Adjust for MINIMUM deflection.
3.	"	"	45.1MC	"	"	A5, A6	Adjust for maximum deflection.
4.	"	"	42.5MC	"	"	A7	"
5.	"	"	43.7MC	"	"		Retouch Mixer Plate Coil for maximum deflection. Remove bias supply & clip leads.

SOUND IF ALIGNMENT

Set the Buzz control to the center of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.005mfd	High side to pin 7 (grid) of Video Amp. Low side to chassis.	4.5MC (30% 400Ω AM mod.)	Any non-interfering channel.	DC probe thru 470K to TP-5. Common to chassis.	A8	Adjust for maximum deflection
7.	"	"	"	"	AC probe or Vert. Amp. of scope to pin 7 (cathode) of picture tube. Low side to chassis.	A9	Adjust for MINIMUM deflection

8. Tune in a strong TV station signal. Adjust A10 and A11 for maximum undistorted sound. Reduce the signal strength until a hiss is head in the sound, and retouch A10 and A11 for maximum undistorted sound. Adjust the Buzz control (R4) for best sound and MINIMUM buzz.



CHASSIS TOP VIEW

SET 443 FOLDER 1

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp.	3CB6	
V2	2nd Video IF Amp.	3CB6	
V3	3rd Video IF Amp. - Vert. Mult	6AU8	
V4	Video Output-Limiter	6AU8	
V5	Audio Det.	3BN6	
V6	Audio Output	5AQ8	
V7	Sync Sep.	3CB6	
V8	Vert. Mult.-Vert. Output	5CZ5	
V9	Horiz. AFC	3AL5	
V10	Horiz. Mult	6CG7	
V11	Horiz. Output	12BQ6A	
V12	Damper	12AX4GTA	
V13	HV Rect.	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	DUMONT PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V14	21DAP4 17BZP4	21DEP4 ② 17CKP4 ①	21DAP4 ② 17BZP4 ②	21DAP4 ③ 17CAP4 ③	① "Aluminized" ② "Silverama" ⑧ ③ "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	140	200	03191461	AFHSH-37-25	XA0315	FP131	TMS-34	TVL-1540	
C2A	▲140	300	03190549		XA0355	FP230.6	TMS-42	TVLS-2657.5*	
B	▲4	400			BR445	FC76	TD-4-450		
C3A	▲100	300	03190548	AFH3-149-60	C0894	FP389.1	TMT-186	TVL-3685	
B	▲10	400							
C	▲20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C5	12		NPO ± .25mmf			TCZ-12			5TCC-Q12S ± .25mmf *	
C6	8		NPO 5%				C10V8C			
C7	1.5					TCZ-1R5	C10V15C	CNO-515	5TCCB-V15	
C8	27		NPO 5%			TCZ-27	C10Q27C	CNO-427	5TCC-Q27S 5% *	
C9	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	①
C10	.056	200	10%					GTM-2156	2WF-S56	
C11	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C12	.056	300			P288N-05	DF-503	CUB3S5	GTM-3156	3WF-S56	
C13	330		10%		DI-330	D6-331	L10T33	JL-333	5GA-T33	
C14	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C15	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C16	470		10%		DI-470	D6-471	22R5T47	JL-347	5GA-T47S 10% *	
C17	330		10%		DI-330	D6-331	22R5T33	JL-333	5GA-T33S 10% *	
C18	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C19	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C20	1.0				NPO-S1 1	TCZ-1		CNO-510	5TCCB-V1	
C21	.047	200			P288N-047	DF-503	CUB2S47	GTM-2147	2TM-S47	
C22	47		5%			DTZ-47	C10Q47C	CNO-447	5TCC-Q47S 5% *	
C23	5600		10%		DI-5600		1DR5D56		5BF-D56	
C24	.22	400			P488N-22		CUB4P22	GEM-4022	4TM-P22	
C25	470				DI-470	DD-471	BYA10T47	B-347	5GA-T47	
C26	.0033	400			P488N-0033	DD-332	CUB6D33	GEM-6233	6TM-D33	
C27	3.3		10%		NPO-S1 3.3	TCZ-3R3	C10V33C	CNO-533	5TCCB-V33S 10% *	
C28	47				SI 47	TCZ-47	L10Q47	CNO-447	5TCC-Q47	
C29	24		5%			TCZ-24	C10Q24C		5TCC-Q24S 5% *	
C30	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C31	470		10%		1469-00047	D6-471	22R5T47	JL-347	MS-347	
C32	7.5		5%							
C33	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C34	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C35	.01	600			P688N-01	DD-103	CUB6S1	GEM-611	6TM-S1	
C36	10		NPO 5%			DTZ-10	C10Q1C	CNO-410	5TCC-Q5S 5%	
C37	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C38	2200				BPD-0022	DD-322	BYA10D22	B-222	5HK-D22	
C39	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C40	.1	400	10%				PM4P1	GTM-401	4TM-P1	
C41	.0039	600	10%				PM6D4	GTM-624	6TM-D4	
C42	.039	1000	10%					GEM-1614	MD-S4	
C43	.22	600	10%				PM6P22	GEM-6022	6TM-P22	
C44	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C45	.22	200			P288N-22			GEM-2022	2TM-P22	
C46	.039	400	10%					GTM-414	4TM-S4	
C47	68		N470 10%							
C48	75		N750-DI 75	DTN-75		C10Q75U			5TCU-Q75S 10% *	
C49	.0047	400	10%				1R5D47	GTM-4247	6TM-D47	
C50	.0033	400	10%				1R5D33	GTM-4233	6TM-D33	
C51	.0056	400	10%				1R5D56	GTM-4256	6TM-D6	
C52	390		10%		1469-00039	D6-391	5R5T39		MS-339	
C53	1000		10%		1469-001		1R5D1	GTM-621	6HK-D1	
C54	.068	200	10%				PM4S68	GTM-2168	2TM-S68	
C55	.0022	400	10%				PM4D22	GTM-4222	4TM-D22	
C56	.0033	400	10%				PM4D33	GTM-4233	4TM-D33	
C57	100		N750-DI 100	DTN-100		C10T1U		CN7-310	5TCU-T1S 10% *	
C58	330		10%		1469-00033	D6-331	5R5T33	JL-333	MS-333	
C59	2200		10%				1R5D22	JL-322	MS-322	
C60	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C61	.018	600	10%							
C62	68	2000	N750 5%							
C63	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	①
C64	.022	400			P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C65	330	3000	N1500 10%							
C66	.033	600			P688N-033	DF-503	CUB6S33	GEM-6133	6TM-S33	
C67	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C68	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C69	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C70	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C71	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C72	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C73	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C74	4700	1400			HVD-15-4700	DDI6-502	HVC20D47	2HV-247 GEM-1614	20HKB-D6 TR-15	
C75	.047	800VAC	10%							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DUMONT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	01072181				† (	Brightness
B	1meg	½						Volume
C	Switch							Push-Push Off-On
R2A	20K	½	01071252					Horiz. Hold
B	1.5meg	½					†† (	Vert. Hold
R3A	7500Ω	4(WW)	01080094	WW-752	A10-7500	WPK-7500	MIMPK	Contrast
B	Shaft			Not Req.	F8-3	Not Req.	DS-36	
R4	750Ω	2(WW)	01071071		39-B00		FL-750	Buzz
R5A	7.5meg	½	01060048	AB-89	A47-7.5meg-B	BU-143	PTA758L	Height
B	Shaft			AK-1	FKS-1/4	SK-3	Not Req.	
R6A	1meg	½	01060049	BX-89	A47-1meg-B	BU-137	TA18L	Vert. Lin.
B	Shaft			Not Req.	FKS-1/4	SK-3	Not Req.	
R7A	100K	½	01071464	BX-40	A47-100K-B	BU-128	PTA18L	Horiz. Range
B	Shaft			Not Req.	FKS-1/4	SK-3	Not Req.	

† "STA-LOC" Equivalent: FA55L, O8750A, RUP16A.
†† "STA-LOC" Equivalent: FA2S1L, O8750A, RU155A, 1R1437.
† "Concentrikit" Equivalent: K-2 Kit with Base Elements & Shafts: BU-119, P1-204 (Panel)
(Not available as a factory assembled unit.) BU3-138, R1-113 (Rear)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DUMONT PART No.	NOTES
	OHMS	WATT		
R8	2.2meg			
R9	820K			
R10	4.7meg			
R11	7.5meg 5%			
R12	390K			
R13	150K			
R14	1.5meg			
R15	2.2meg 5%			
R16	270K			
R17	1meg			
R18	270Ω			
R19	1000Ω			
R20	10K			
R21	12K			Note 1
R22	470Ω			
R23	56Ω			
R24	120K			
R25	470Ω			
R26	120K			
R27	68000			
R28	3700Ω	7	02242910	
R29	10K	2		
R30	5600Ω			
R31	82Ω			
R32	4700Ω			
R33	22K			
R34	4700Ω			
R35	1meg			
R36	18K			
R37	47K	1		Note 2
R38	68Ω			
R39	22K			
R40	33K			Note 3
R41	2200Ω	1		
R42	220K			
R43	120K			
R44	100K			
R45	1000Ω			
R46	100K			
R47	33K			
R48	680Ω			
R49	1.5meg			
R50	470K			

ITEM No.	RATING		DUMONT PART No.	NOTES
	OHMS	WATT		
R51	22K	2		
R52	470Ω			
R53	680Ω	1		
R54	100K			
R55	390K			
R56	2.2meg			
R57	100K			
R58	8200Ω			
R59	10K	2		
R60	22K	2		
R61	1.8meg			
R62	2.2meg			
R63	220Ω			
R64	30K Cold			Note 1
R65	18K			
R66	15K			
R67	330Ω			
R68	330Ω			
R69	820K			
R70	18000			
R71	1meg			
R72	270Ω			
R73	5600Ω			
R74	1meg			
R75	82K			
R76	10K	1		
R77	1000Ω			
R78	56K			
R79	82K			
R80	22K			Note 2
R81	1meg			
R82	100Ω			
R83	15K	2		Note 3
R84	1.2meg			
R85	10K	1		
R86	10K			
R87	27K	2		
R88	5600Ω	4	02300730	
R89	12Ω	20	02287960	Note 1
R90	12Ω	20	[illegible]	
R91	50Ω	25	02304200	
R92	470K			

Note 1. Not used in some versions.
Note 2. Some versions may use 100Ω in this application.
Note 3. Some versions may use 8200Ω 2W in this application.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DUMONT PART No.	REPLACEMENT DATA	
K1	Vert. Integrator		88001481	Sprague	V-15
K2	Vert. Feedback		88001482	Sprague	V-14
K3	Picture Tube Isolation	.3-1meg, 470mmf @ 600VAC	88001830	Centralab Sprague	RC-471 AC1-1

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA					NOTES
		DUMONT PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1A	1st Video IF	20010524					
B	47.25MC Trap						
L2	47.25MC Trap	21014933		TV-153 ▲			▲ Disregard tap.
L3	2nd Video IF	20010531	17-5001 ■	TV-126 ■			■ Use Adaptor Plate.
L4	3rd Video IF	20010532	17-5001 ■	TV-126 ■			■ Use Adaptor Plate.
L5	4th Video IF	20010551					
L6	RF Choke	21012454					27 Microhenries
L7	Shunt Peaking Coil	21015561	19-3375	TV-201	6134		395 Microhenries
L8	Series Peaking Coil	21015563	19-3180	TV-184	6180	VP-5	188 Microhenries
L9	RF Choke	21012454					27 Microhenries
L10	Series Peaking Coil	21014258					139 Microhenries
L11	1st Sound IF	21014892					
L12	2nd Sound IF	20010562		TV-149 •			• Remove C31.
L13	Quadrature Coil	21014852		TV-121 •			• Remove C36.
L14	RF Choke	21006550			4611		8.2 Microhenries ①
L15	RF Choke	21006520		SW-631			4.7 Microhenries ①

① IRC Part #CL-1.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DUMONT PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L16	100Ω		21014914		TV-165 ▲		H-102	HS-7 ■■	Horiz. Freq.

▲ Disregard tap ■ Drill new mounting hole.

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES	INDUCTANCE @ CURRENT 1000 ∿	DUMONT PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L17	300A	48Ω	1.5 hy	21014877	C5037 ①	C-2996 ①	F-801 ①	C-2326 ①	26C44	C-17X ①

① Drill new mounting hole.

COILS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA								
		DUMONT PART No	Halldorson PART No	Merit PART No	Miller PART No	Ram PART No	Rogers PART No	Stancor PART No.	Thordarson PART No	Triad PART No
L18	Width (15-50MH)	21017692		MWC-3					WC-19	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA								
		DUMONT PART No	Halldorson PART No	Merit PART No	Ram PART No	Rogers PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	Vert. Output	20010454	21900 ①②	A-3038 ①	V305 ①	V034 ①	A-8143 ①	26S53 ①	A-118X ③
T2	Yoke-Horiz. (30MH)	[illegible]		MDF-110 ④				Y-46 ④	Y-66 ④
	(110°)-Vert. (34MH)								XW-24
T3	Horiz. Output	[illegible]		HVO-126 *				FLY-148 *	D-159 *

① Connect as autoformer.
② Use 10 : 1 turns ratio.
③ Use 8 : 1 turns ratio.
④ Use original rear cover, centering device and yoke damping network.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5		5				5	5
	6		6				6	6
	2		2				2	2
	1		1				1	1
	D		D				D	D
	C		C				C	C
Connect Width Coil Across →	"D" and B+ (255V)		"D" and B+ (255V)				"D" and B+ (255V)	"D" and B+ (255V)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DUMONT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	9000Ω	3-4Ω	20010573	Z1117 ①	A-2998	AU-608 ①	A-3879 ①	24S83	S-11X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DUMONT PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	18003709	6A15	① Alternate used in some models
	4"	PM	3-4Ω	18003795 ①		

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DUMONT PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.290A	26002871 ①	HE504U2		SD500 ②	40K ②	① Germanium Type.
M2	.290A	26002871 ①	HE504U2		SD500 ②	40K ②	② Silicon Type

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		DUMONT PART No.	CBS PART No.	SYLVANIA PART No	
M3	1N295	26001891 ①	1N60	1N60	Video Detector, Clip-in

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M4	Tuner	89015971	VHF with UHF provisions
	Tuner	89016061	UHF
	Switch	06004339	Local-Distant (DPDT Slide Type)
M5	Circuit Breaker	06015391	
M6	Switch	06015401	Antenna, 17" Models

DUMONT CHASSIS RA-502, RA-503

FOLDER 1

PARTS LIST & DESCRIPTION (continued)

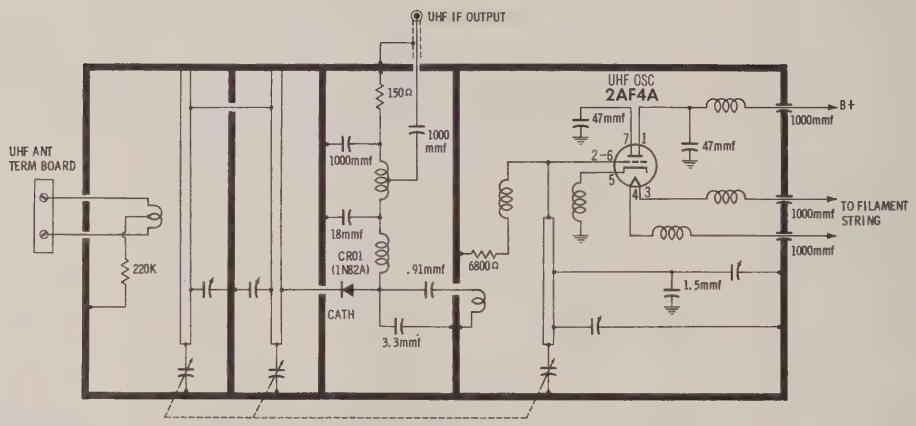
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	45009452	21" Models
Safety Glass	45009451	17" Models
Mask	64015891	21" Models
Mask	64015881	17" Models
Knob	45009462	VHF Channel Selector, 21" Models
Knob	45009461	VHF Channel Selector, 17" Models
Knob	45009442	Fine Tuning, 21" Models
Knob	45009441	Fine Tuning, 17" Models
Knob	45009481	UHF Tuning
Dial	45009491	UHF
Knob	45009411	Control, Dual-Large Outer
Knob	45009421	Control, Dual-Small Inner
Knob	45009431	Contrast
Control Panel	32008961	21" Models
Control Panel	32008951	17" Models
Handle	64015921	Mahogany, 17" Models
Handle	64015922	Blond, 17" Models
Handle	64015923	Walnut, 17" Models

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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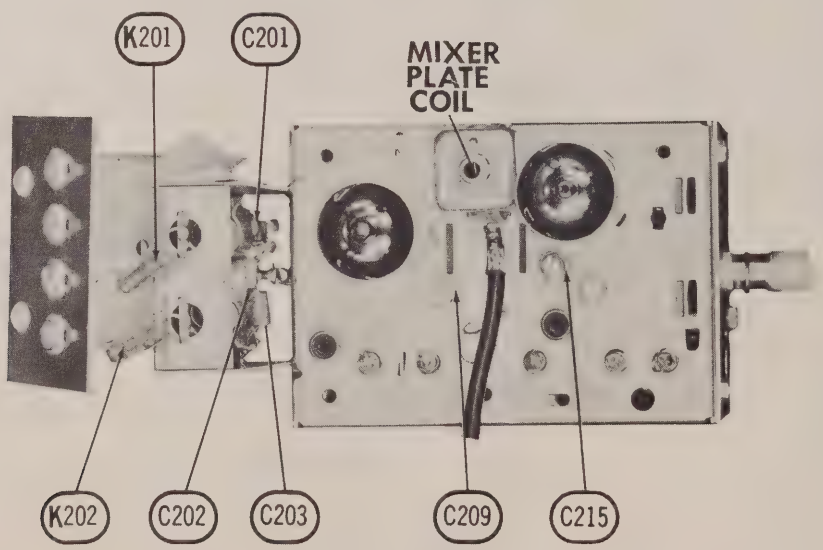
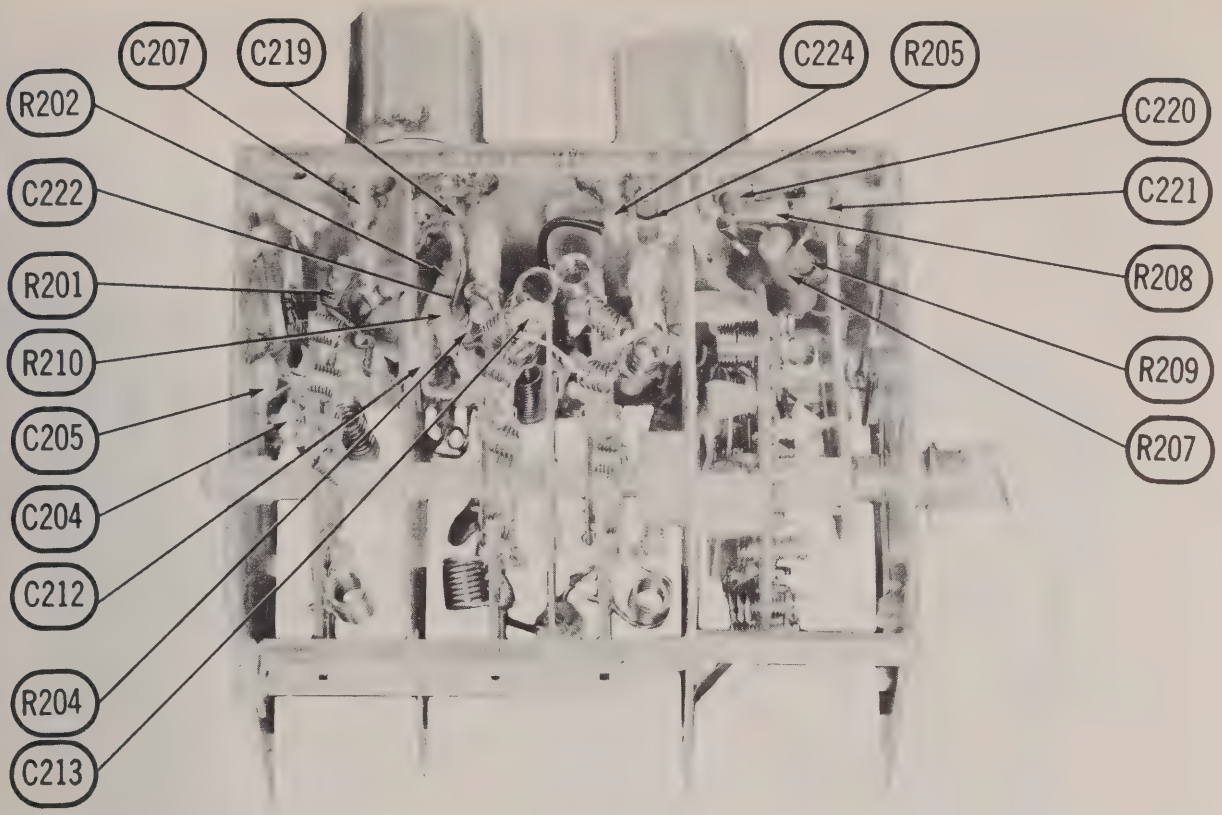
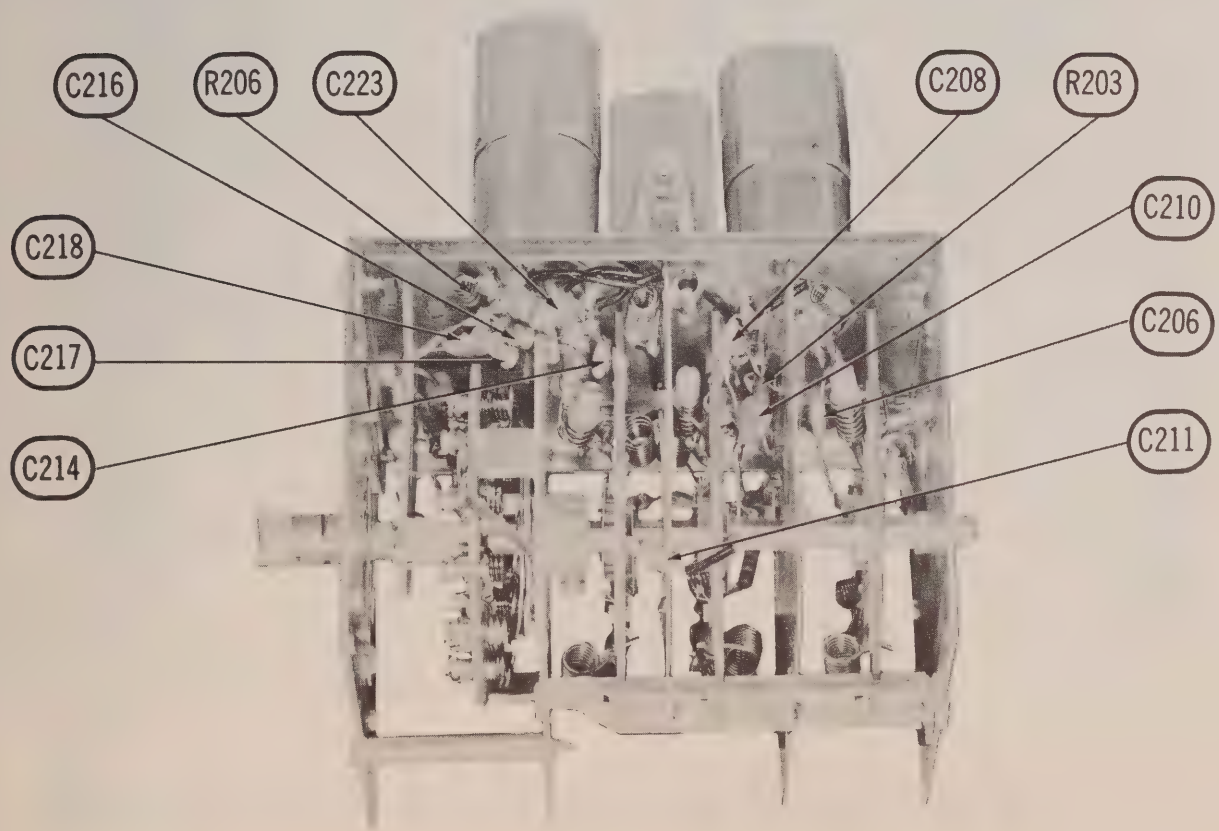
UHF TUNER 89016051



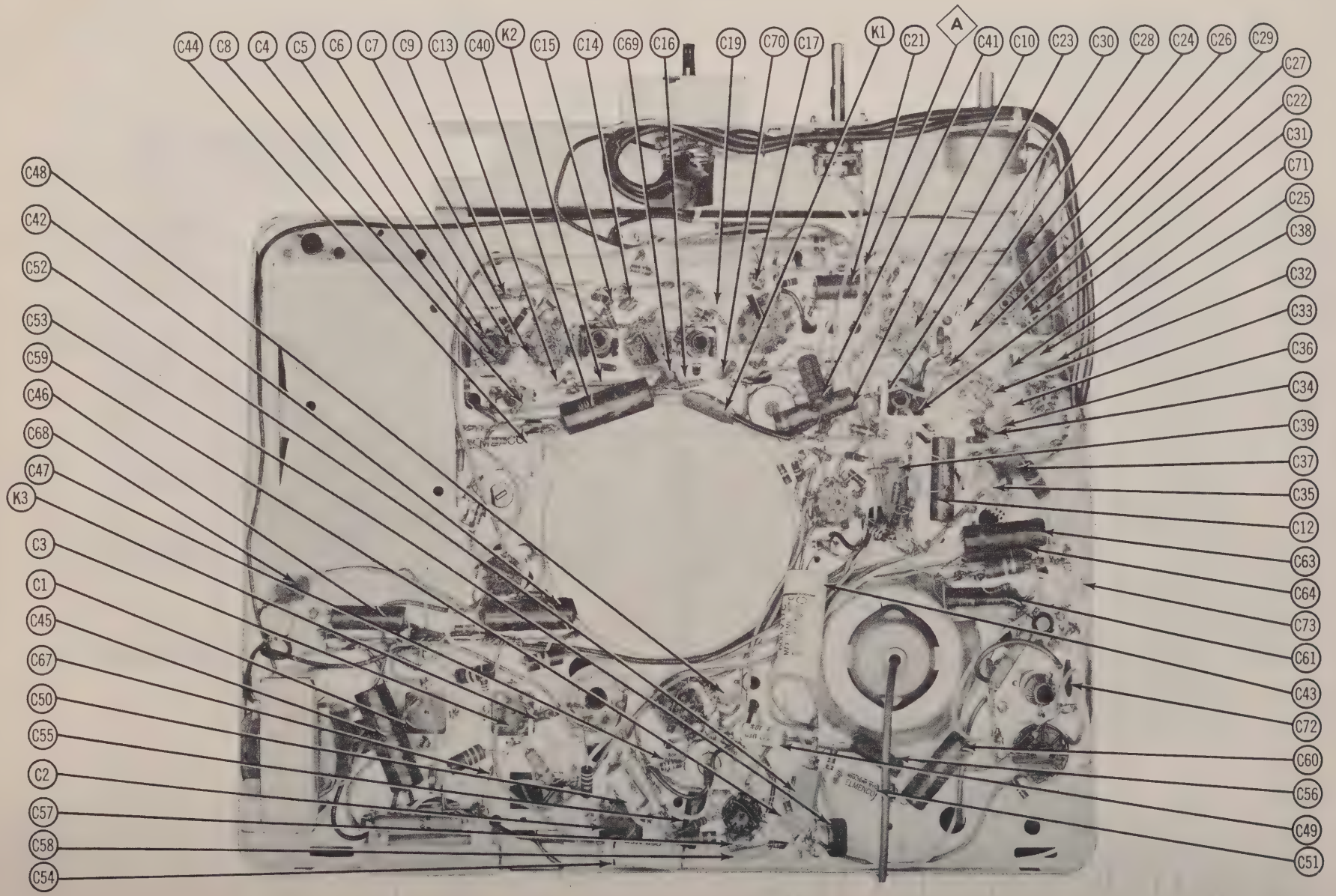
TUNER 89015971 TOP VIEW



TUNER 89015971 - LEFT SIDE



TUNER 89015971 - RIGHT SIDE



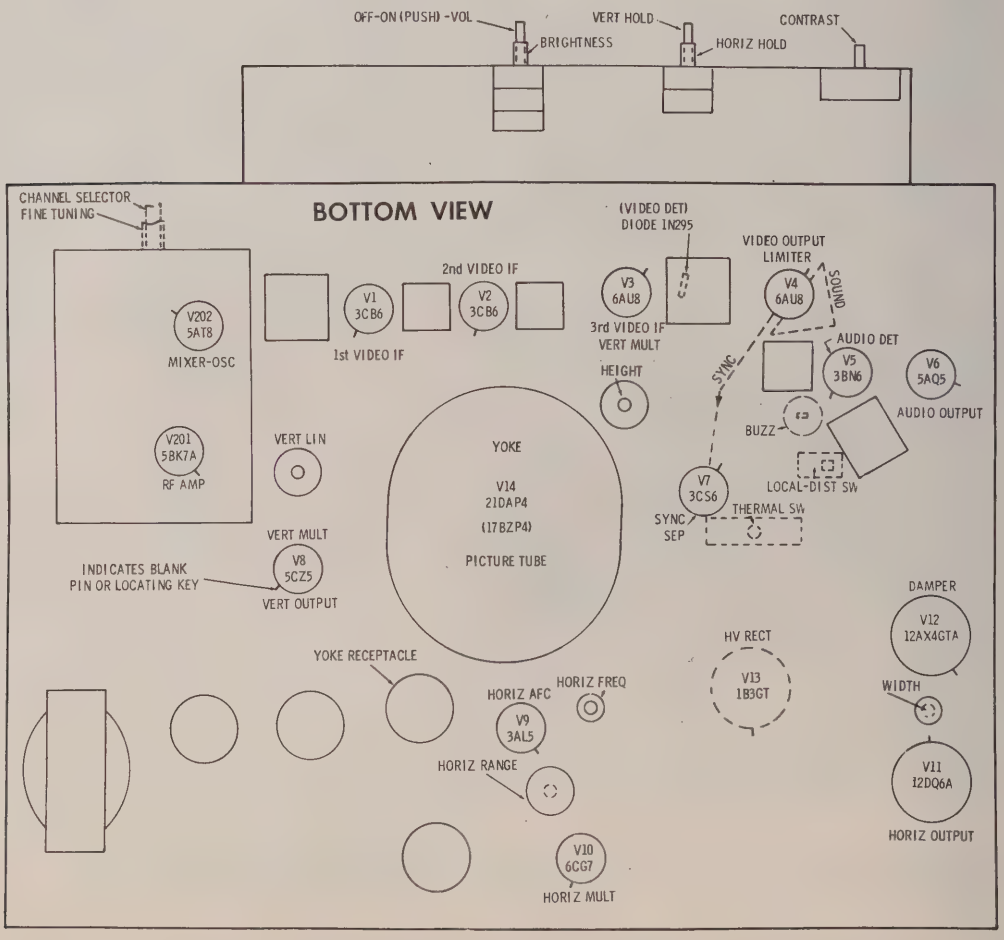
CHASSIS BOTTOM VIEW - CAPACITOR, ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

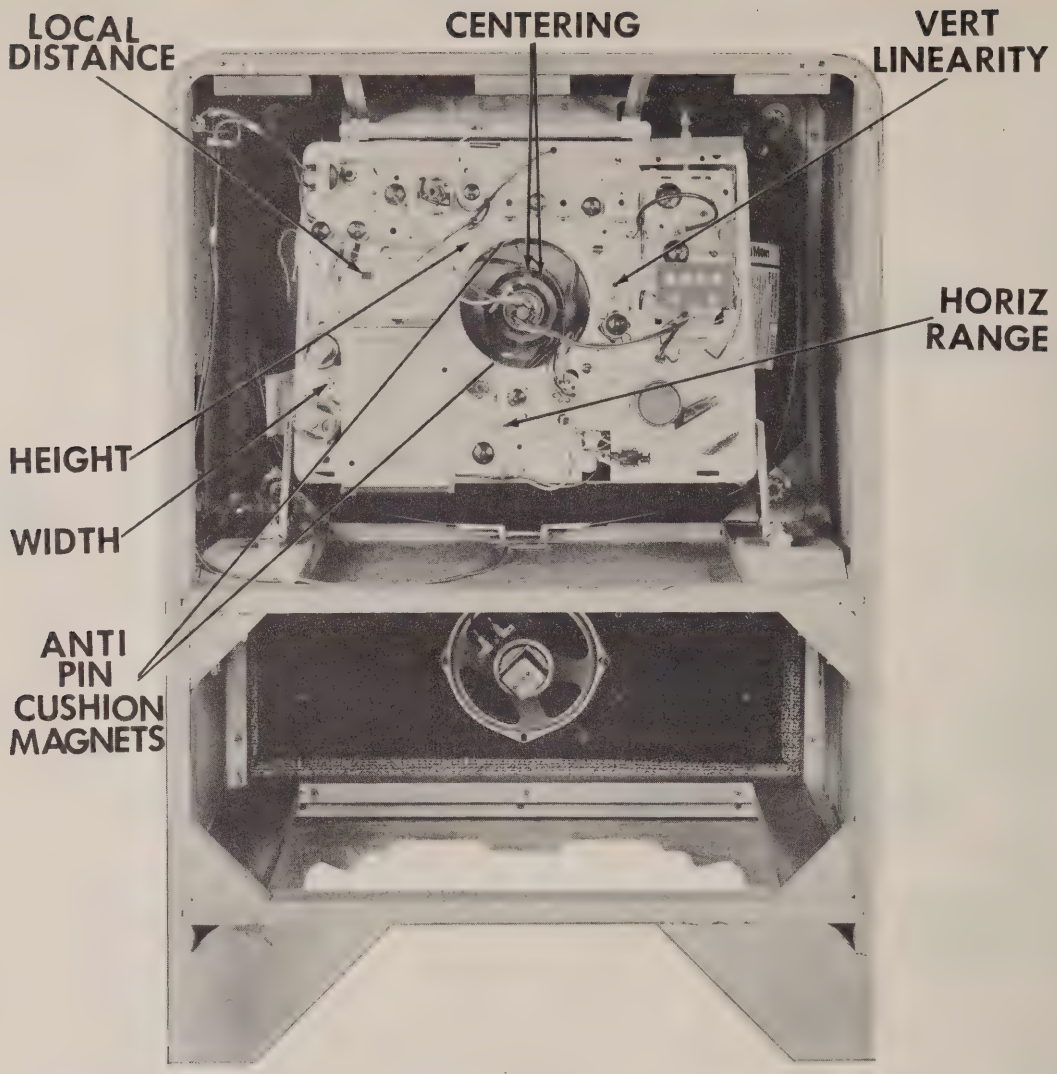
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3CB6	700K	56Ω	††17Ω	16Ω	††470Ω	††470Ω	0Ω		
V2	3CB6	60K	67K	16Ω	15Ω	†470Ω	†470Ω	67K		
V3	6AU8	0Ω	• 1meg	• ‡3.8meg	14Ω	15Ω	82Ω	.1Ω	†3000Ω	†3000Ω
V4	6AU8	0Ω	100K	†55K	12.5Ω	14Ω	68Ω	1meg	†47K	†8000Ω
V5	3BN6	• 330Ω	.4Ω	11.5Ω	12Ω	†22K	4.2Ω	‡2meg		
V6	5AQ5	0Ω	680Ω	12Ω	12.5Ω	†1000Ω	†470Ω	0Ω		
V7	3CS6	400K	0Ω	11Ω	11.5Ω	†65K	†7500Ω	1.5meg		
V8	5CZ5	†0Ω	TP	2.8meg	17Ω	18Ω	2.8meg	0Ω	NC	†370Ω
V9	3AL5	1meg	1800Ω	10.5Ω	11Ω	1meg	0Ω	1.8meg		
V10	6CG7	†10K	2.8meg	1000Ω	10.5Ω	9Ω	†82K	• 105K	1000Ω	0Ω
V11	12DQ6A	NC	6.5Ω	NC	†15K	1meg	TP	9Ω	0Ω	TOP CAP ‡17Ω
V12	12AX4GTA	NC	NC	INF	NC	†50Ω	NC	4Ω	6.5Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡267Ω
V14	21DAP4	2.5Ω	15K	†100K	†100K	NC	15K	200K	4Ω	
V201	5BK7A	INF	3.2meg	0Ω	0Ω	1.2Ω	†2200Ω	310K	INF	0Ω
V202	5AT8	6800Ω	†13K	0Ω	1.2Ω	2.5Ω	†1300Ω	†100K	0Ω	100K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
†† MEASURED FROM PIN 7 OF V2.
‡ MEASURED FROM PIN 3 OF V12.
† MEASURED FROM 255V SOURCE.

NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a clip lead across the Horizontal Frequency coil (L16).

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Horizontal Hold control to the center of its range and adjust the Horizontal Range control (R7) until the picture almost locks in sync horizontally.

Remove the clip lead from across L16 and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

Adjust the Width slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

PHOTOFACT* Folder

EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

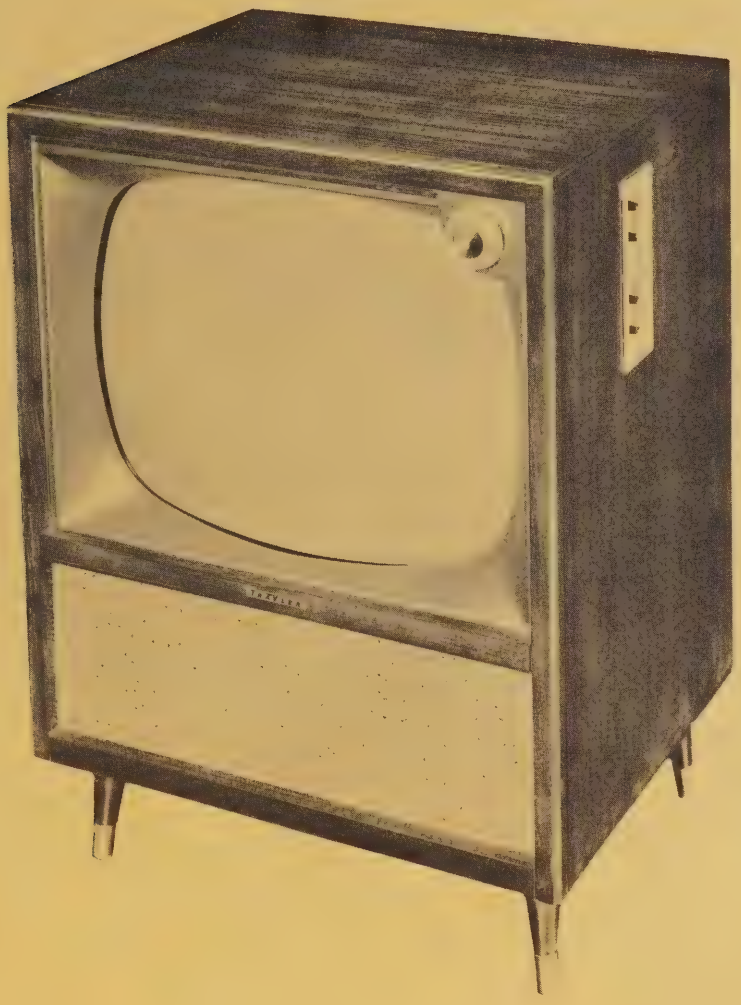
TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)



MODEL 721-K-751 (Ch. 943-38)

TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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DATE 5-59

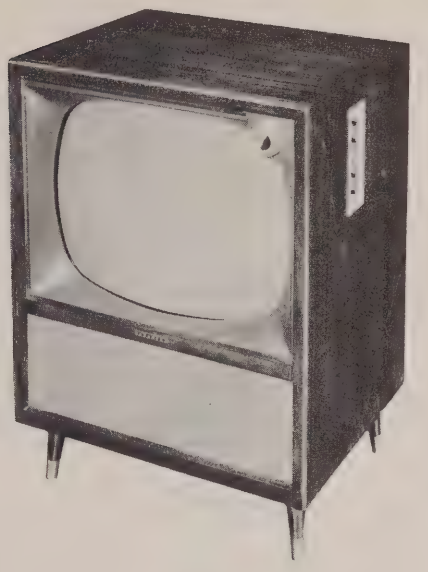
SET 443 FOLDER 2

TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 721-K-751

1. Remove 2 front and 4 side push-on type knobs.
2. Remove 9 wood screws holding rear cover. Remove the rear cover.
3. Remove 2 outside metal screws holding the side control panel.
4. Remove speaker leads and 2 tuner plugs.
5. Remove 2 wood screws holding tuner bracket to cabinet. Remove tuner.
6. Remove 7 nuts and bolts holding chassis board. Remove chassis and board.



MODEL 721-K-751 (Ch. 943-38)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Trav-Ler	MODELS	CHASSIS
		721-K-751, 721-T-741	943-38
		1731A, 1732	947-28
		721-K-769, 1470, 1739	975-48
MANUFACTURER	Trav-Ler Radio & Tele. Corp., 571 West Jackson Blvd., Chicago 6, Illinois		
TYPE SET	Television Receiver		
TUBES	Thirteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING 120 Watts, 1.2 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover and supplying power to receiver.

SAFETY GLASS REMOVAL MODEL 721-K-751

Remove Channel Selector and Fine Tuning push-on type knobs. Remove 4 wood screws holding metal trim strip at top of safety glass. Tilt top of glass out and lift to remove.

AGC

No provision is made to vary the AGC of this receiver.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 2, or 6 and 10.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency slug. (For location, see tube placement chart.)

FUSE DEVICE

A 4.7Ω fusible resistor (R59) is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished by a centering device behind the yoke.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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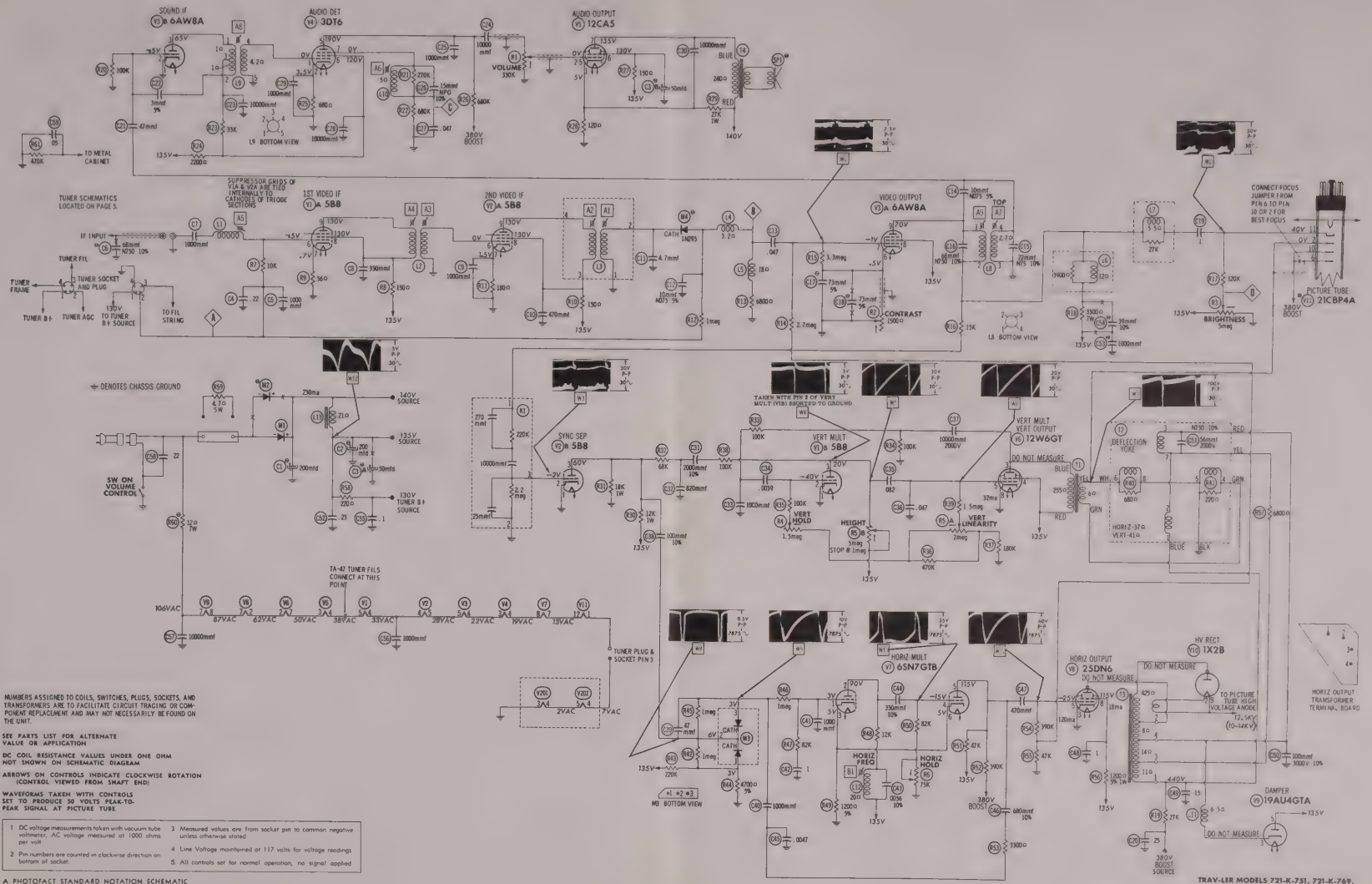
J110

TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

SET 443 FOLDER 2



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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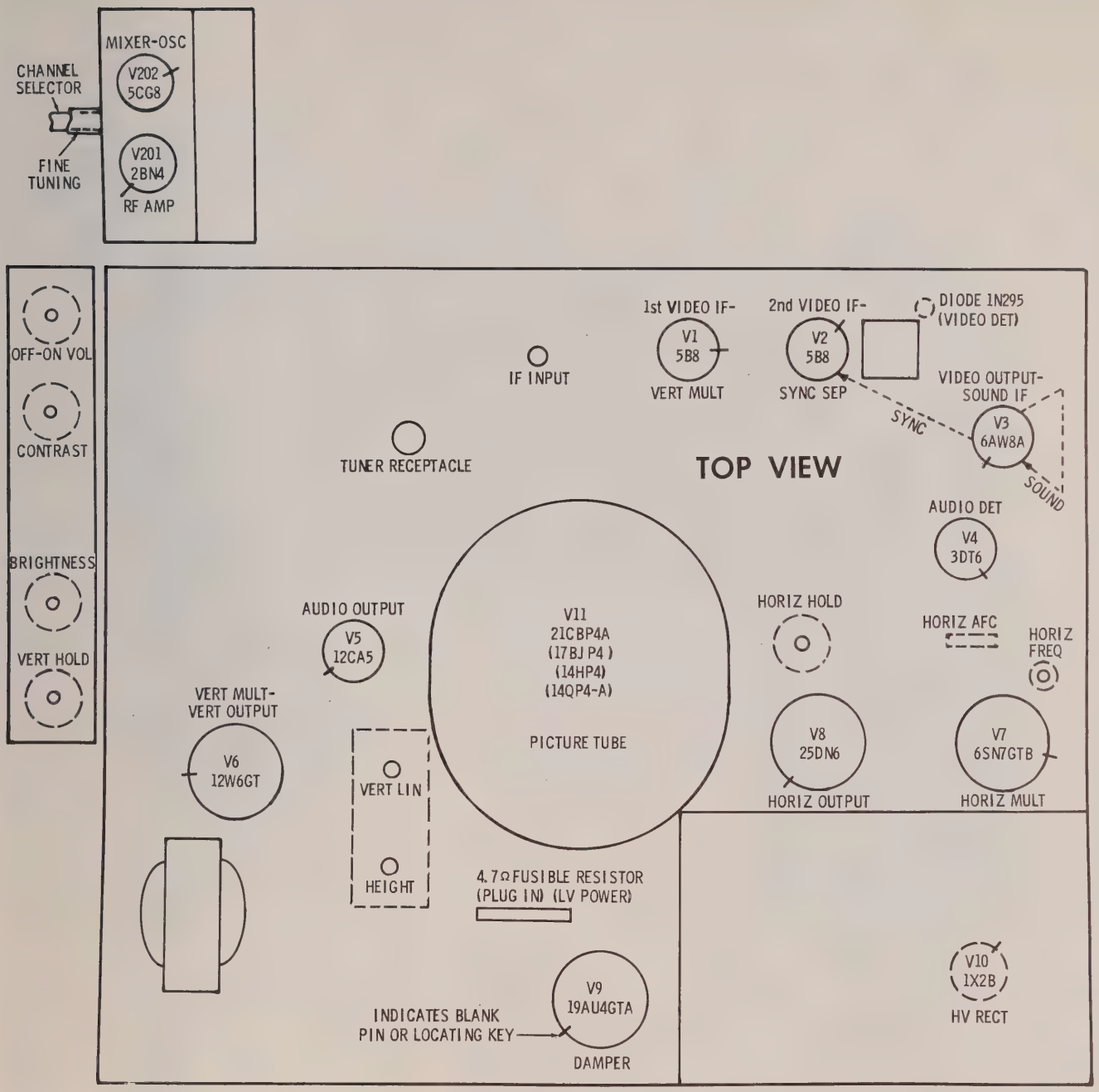
TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

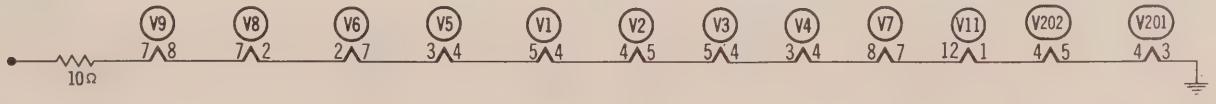
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (4.7Ω), Rectifiers (B+)

SWEEP FAILURE
No raster, has sound Rectifier (Horiz. AFC), V7, V8, V9, V10, V11,
No vertical deflection V1, V6 Rectifiers (B+)
Poor vert. linearity or foldover V1, V6
Poor horiz. linearity or foldover V7, V8, V9
Narrow picture V7, V8, V9, Rectifiers (B+)
Vert. off freq. V1, V6
Horiz. off freq. V7

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V11
Has pic, no sound V3, V4, V5
Overloaded picture

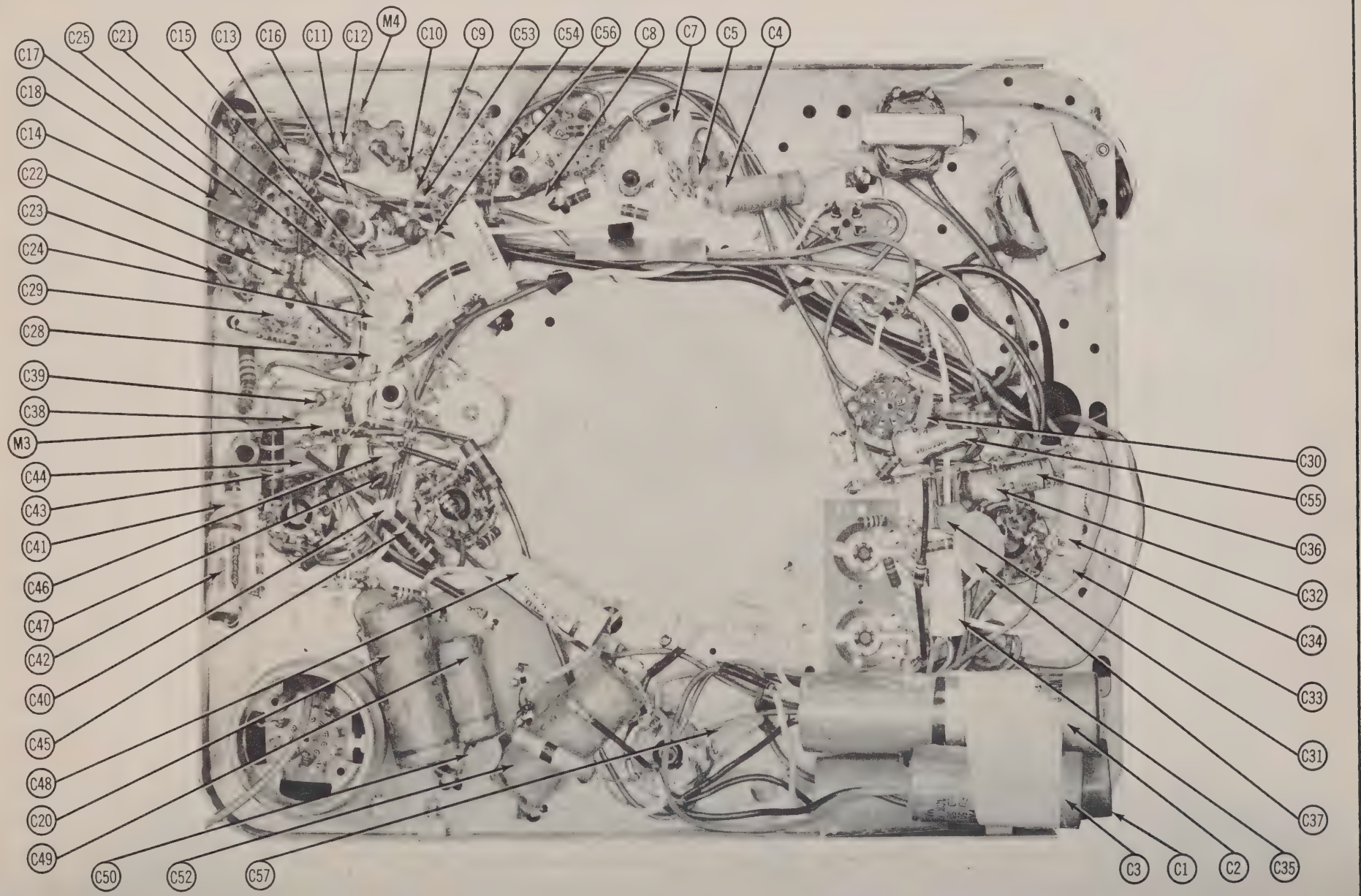
SYNC FAILURE
No vert. sync V2
No horiz. sync V2, Rectifier (Horiz. AFC)
No vert. or horiz. sync V2

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)

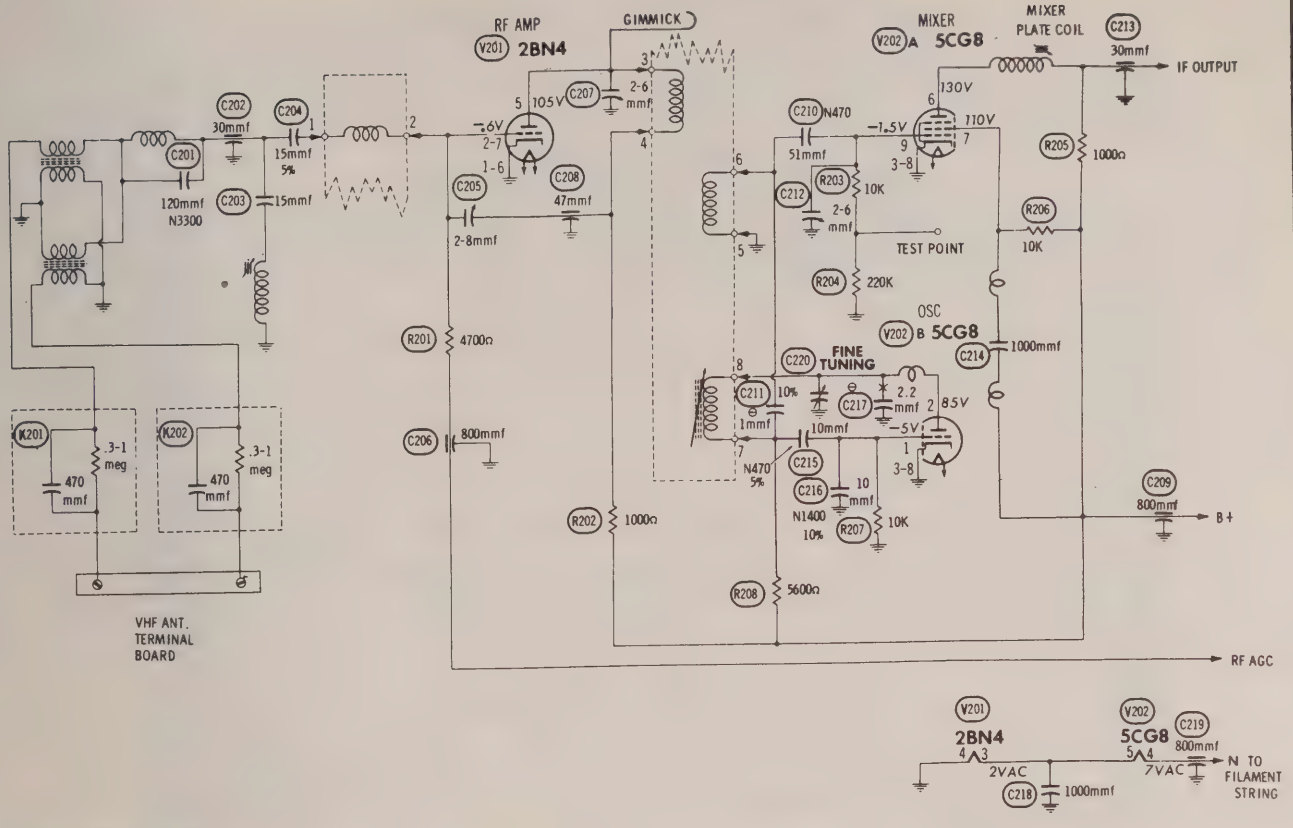


TRAV-LER MODELS 721-K-751, 721-K-769, 721-T-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

FOLDER 2



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



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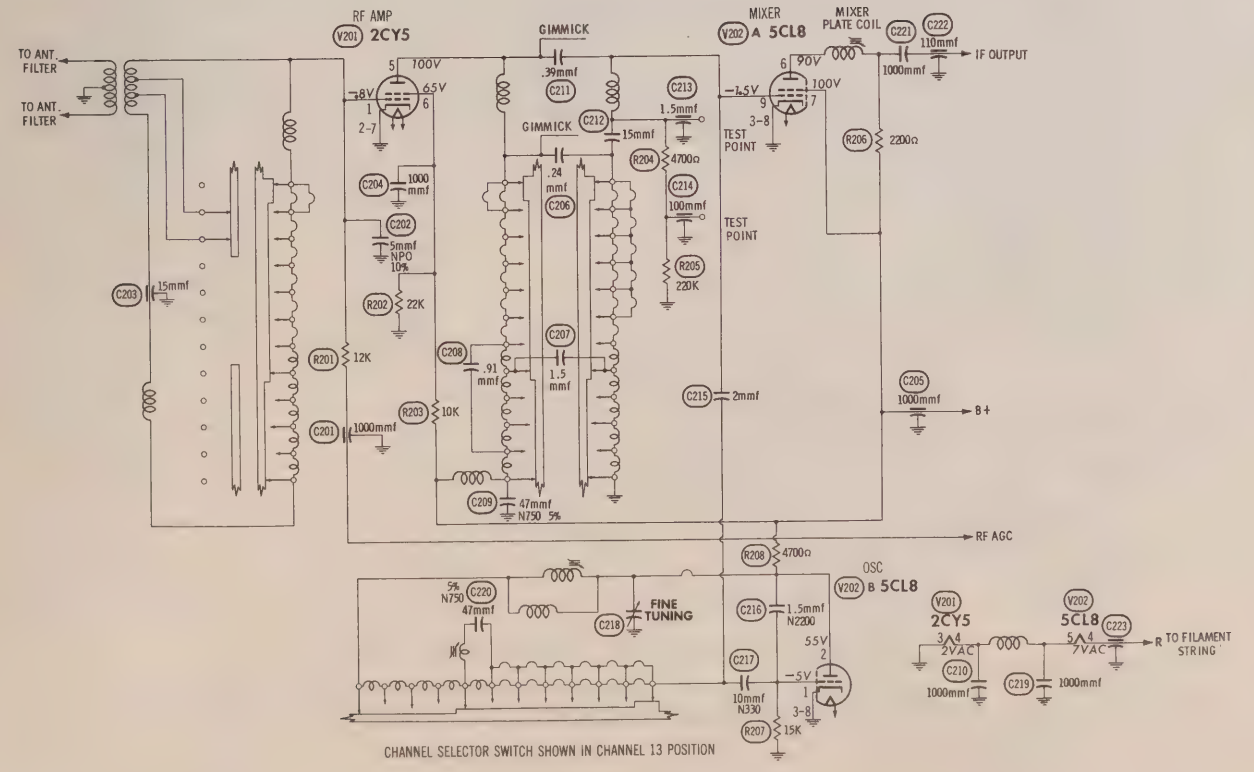
VHF TUNER TA-43, -47



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VHF TUNER TA-75

TUNER PARTS LIST
TA-43, -47
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	
V202	Mixer-Osc.	5CG8	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	2AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120								N3300
C202	30								
C203	15			DI 15	DD-150	L10T15	UC-5415	5GA-Q15	
C204	15				DTZ-15				5%
C205	2-8								
C206	800								
C207	2-6								
C208	47								
C209	800								
C210	51								N470
C211	1								10% ①
C212	2-6								
C213	30								
C214	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C215	10								N470 5%
C216	10								N1400 10%
C217	2.2				DTZ-2R2	CTA6V22C		5TCCB-V22	②
C218	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C219	800								
C220									
C221									
C222									
C223	30								N470 5%
C224									
C225									
C226									
C227									
C228	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C229									
C230									

① Some versions may use 1.5mmf in this application.
② Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	10K			
R204	220K			
R205	1000Ω			
R206	10K			

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R207	10K			
R208	5600Ω			
R209	10K			
R210	2200Ω	1		
R211	3300Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAV-LER PART No.	REPLACEMENT DATA	
K201	Ant. Filter (VHF)	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177
K202	Ant. Filter (VHF)	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177
K203	Ant. Filter (UHF)	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177
K204	Ant. Filter (UHF)	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TRAV-LER PART No.	CBS PART No.	SYLVANIA PART No.	
M201	1N82A		1N82A	1N82A	UHF Mixer (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M202	Cover	FCN-042	UHF
M203	Contacts	23A-148	Extension (For UHF position)

TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover, and supplying power to the receiver. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, thru a hole in the right side of the tuner rear cover as viewed from the rear. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

TUNER PARTS LIST AND DESCRIPTIONS

TA-75

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2CY5	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CL8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1000			EF-001	MFT-1000			503C-D1	
C202	5			NPO-DI 5	DTZ-4R7	C10V5C	ZT-555	5TCCB-V5	NPO 10%
C203	15								
C204	1000			EF-001	MFT-1000			503C-D1	
C205	1000			EF-001	MFT-1000			503C-D1	
C206	.24								
C207	1.5			NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	
C208	.91								
C209	47			N750-DI 47	DTN-47	C10Q47U		5TCU-Q47	N750 5%
C210	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C211	.39								
C212	15			BPD-000015	DD-150	L10Q15	UC-5415	5GA-Q15	
C213	1.5								
C214	100			EF-0001	MFT-100			503C-T1	
C215	2								
C216	1.5								N2200
C217	10								N330
C218									
C219	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C220	47				DTN-47				N750 5%
C221	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C222	110								
C223									

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R201	12K			
R202	22K			
R203	10K			
R204	4700Ω			

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R205	220K			
R206	2200Ω			
R207	15K			
R208	4700Ω			

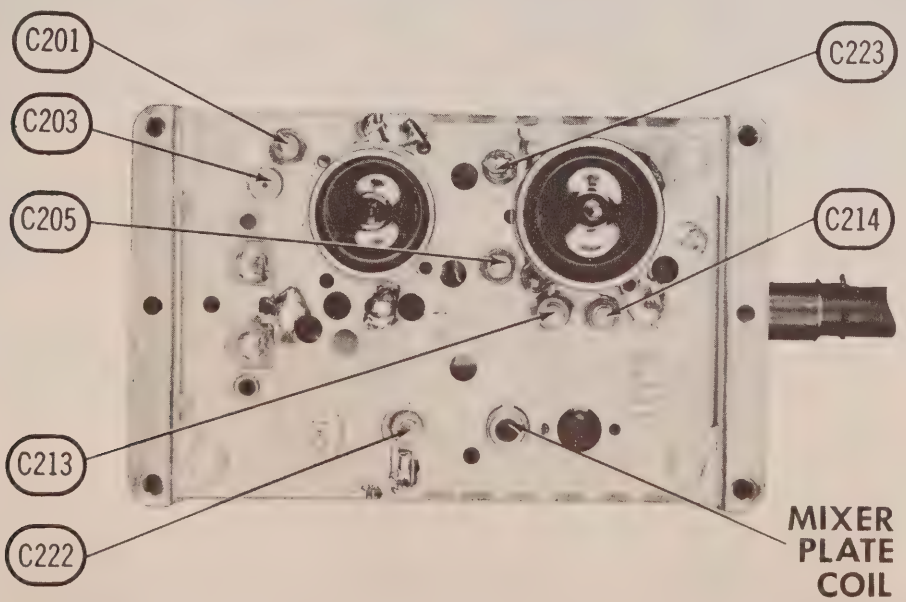
TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT FOR TUNER #TA-75

Set the Fine Tuning at the center of its range. One slug for HIGH band adjustment is located at 4 o'clock, and should be adjusted first. The LOW band adjustment is located at 9 o'clock. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



TUNER TA-43 TOP VIEW

SET 443 FOLDER 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp. - Vert. Mult.	6BS8	
V2	2nd Video IF Amp. - Sync Sep.	5B8	
V3	Video Output-Sound IF	6AW8A	
V4	Audio Det.	5DT6	
V5	Audio Output	12CA5	
V6	Vert. Mult. - Vert. Output	12W6GT	
V7	Horiz. Mult.	6BN7GTB	
V8	Horiz. Output	25D8	
V9	Damper	19AU4GTA	
V10	HV Rectifier	1X2B	

* Alternate.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRAV-LER PART No	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V11	21CBP4A 17BJP4 14HP4	21BTP4 ① * 14QP4A ①	21CBP4-A ② 17BJP4 ② 14HP4 ② 14QP4-A ②	21CBP4/ 21CBP4A ③ 17BJP4 ③ 14HP4 ③	① "Aluminized" ② "Sirverama" ③ ④ "Silver Screen 85" * Add Ion Trap.

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SPRAGUE PART No.	
C1	200	150	EC-84 ①	PR3-100	BR20015	WS343	TD-300-300	TVA-1433	
C2	200	150	EC-84 ①	PR3-100	BR20015	WS342	TD-300-300	TVA-1433	
C3A	50	150	EC-84 ①	PRS150V50S6	BBRD6515	TCD49	TDLD-9	TVA-2453	
B	50	150							

① Some versions may use a single component Part #EC-79 with sections of 350, 200, 10 mfd ③ 150 volts. C1 remains 200mfd, C2 and C3A are a single 250mfd and C3B becomes 10mfd.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.22	100			P288N-22		CUB2P22	GEM-3022	2TM-P22	
C5	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C6	56		N750 10%		N750-SI 56	TCZ-56	C10Q56U	UNT-466	5TCU-Q55 10% *	①
C7	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C8	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C9	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C10	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C11	4.7				NPO-SI 4.7	MD-4R7	C10V47C	CNO-547	5TCCB-V47	
C12	10		N075 5%							
C13	.047	200			P288N-047	DF-503	CUB2S47	GEM-4047	2TM-S47	
C14	10		N075 5%							
C15	22		N75 10%							
C16	56		N750 10%		N750-SI 56	TCZ-56	C10Q56U	CNT-466	5TCU-Q55 10% *	
C17	75		5%		1469-000073	DTZ-75	22R5Q75	MCE230	MS-475	②
C18	73		5%		1469-000073	DTZ-75	22R5Q75	MCE230	MS-475	③
C19	.1	200			P288N-1	DF-104	CUB2P1	GEM-301	2TM-P1	
C20	.25	600			P288N-25		CUB6P25	GEM-6025	6TM-P25	
C21	47				SI 47	D6-470	L10Q47	UC-5447	5GA-Q47	
C22	3		5%	CC-30	NPO-SI 3.0	D6-030	C10V3C		5TCCB-V30 5% *	
C23	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C24	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C25	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C26	15		NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CNO-415	5TCC-Q15 10% *	
C27	.047	300			P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C28	10000				BPD-01	DD-103	BYA10S	B-110	5HK-S1	
C29	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C30	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C31	2000		10%		DI-2000		PM6D2	JL-220	5TM-D2	
C32	330				HVD-15-330	DD-331	BYA10T33	B-333	5GA-T33	
C33	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C34	.0039	400		PC-58	P488N-004	D6-402	CUB6D4	GEM-634	6TM-D4	
C35	.082	200		PC-54					2WF-S82	
C36	.047	200		PC-39C	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C37	10000	3000		CC-88		DD-103		2HV-110	20HKB-S1	
C38	100		10%		DI-100	DD-101	L10T1	ZT-531	5TM-T1	
C39	47				SI 47	D6-470	L10Q47	UC-5447	5GA-Q47	
C40	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C41	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C42	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C43	.0056	400	10%	PC-56	1464-0056		1SR5D56	GTM-4256	5SF-D56	
C44	330		10%		1469-000033	D6-331	5R5T33		MS-333	
C45	.0047	600			P488N-0047	D6-472	CUB6D47	GEM-6347	6TM-D47	
C46	680		10%		1464-00068	D6-681	1R5T68		MS-368	
C47	470				BPD-00047	D6-471	BYA10T47	B-347	5GA-T47	
C48	.1	400		PC-8C	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C49	.15	600			P688N-15		PM6P15	GTM-6015	6TM-P15	
C50	100	3000	10%	CC-100	HVD-30-100	DD90-101	HVB30T1	3DY-310	30GAB-T1	
C51	56	3000	N750 10%	CC-86						
C52	.25	600			P688N-25		CUB6P25	GEM-6025	6TM-P25	
C53	1000				BPD-001		BYA10D1M	B-210	5HK-D1	④
C54	39		10%		NPO-SI 39	D6-390	L10Q39	UC-5439	5GA-Q39S 10% *	④
C55	.1	200			P288N-1	D6-104	CUB2P1	GEM-201	2TM-P1	
C56	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C57	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C58	.22	600		PC-37C	P688N-22		CUB6P22	GEM-6022	6TM-P22	
C59	.05	400			P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions.
③ Some versions replace C17 and C18 with a single 150mmf.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRAV-LER PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No.	MALLORY PART No.	
R1A	330K	½	VC-143	B-60	A47-500K-Z	QI3-132	TA334A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KK-1	SWE-13	76-1		Power On-Off
R2	1500Ω	½	VC-142	B-515		QI7-109	US	Contrast
R3	5meg	½	VC-140			QI7-141	TA56R	Brightness
R4A	1.5meg	½	VC-141	B-743	A47-1.5meg-S	QII-138	U-155	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req	Not Req.	
R5A	2meg	½	VC-145					Vert. Lin.
B	5meg	½						Height, Stop ④ 1meg
R6A	75K	½	VC-144	B-35	A47-75K-S	BII-125	PTA15L	Horiz. Hold
B	Shaft			Not Req.	FKS-1/4	TM-2	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R7	10K			
R8	150Ω			
R9	56Ω			
R10	150Ω			
R11	180Ω			
R12	1meg			
R13	6800Ω			
R14	2.7meg			
R15	3.3meg			
R16	15K			
R17	120K			
R18	3300Ω	7	WR-40	
R19	27K			
R20	100K			
R21	270K			
R22	680K			
R23	33K			
R24	2200Ω			
R25	680Ω			
R26	680K			
R27	150Ω			
R28	1200			
R29	27K	1		
R30	12K	1		
R31	18K	1		
R32	68K			
R33	100K			
R34	100K			

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R35	100K			
R36	470K			
R37	180K			
R38	100K			
R39	1.5meg			
R40	680Ω			
R41	220Ω			
R42	1meg			
R43	220K			
R44	4700Ω 5%			
R45	1meg			
R46	1meg			
R47	82K			
R48	12K			
R49	1200Ω 5%		1R-191	
R50	82K			
R51	47K			
R52	390K			
R53	3300Ω			
R54	390K			
R55	47K			
R56	1200Ω 5%	1		
R57	6800Ω			
R58	220Ω			
R59	4.7Ω	5	F-10	
R60	12Ω	7	WR-34	
R61	470K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAV-LER PART No.	REPLACEMENT DATA	
X1	Sync Coupling	25mmf, 270mmf, 10000mmf, 220K, 2.2meg	CC-96	Aerovox Centralab Sprague	PA-533 PC-253 ST-3

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		TRAV-LER PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No	NOTES
L1	1st Video IF	L-103	17-4538 *	TV-131		VF-4	* Disregard tap.
L2	2nd Video IF	L-131					
L3	3rd Video IF	L-123					
L4	RF Choke	L-133					17 Microhenries
L5	Shunt Peaking Coil	L-138		TV-207	6156		806 Microhenries
L6	Shunt Peaking Coil	L-127					
L7	Series Peaking Coil	L-126					
L8	1st Sound IF	L-135					
L9	2nd Sound IF	L-139					
L10	Quadrature Coil	L-134	20-1007				
L11	RF Choke	L-59	19-1005	BC-566	4612		10 Microhenries IRC Part #CL-1

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRAV-LER PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L12	20Ω		L-132		TV-165 ▲	6212 ▲		H8-5	Horiz. Freq. ▲ Disregard tap.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ℃)	TRAV-LER PART No	Halldorson PART No.	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L13	.250A	21Ω	.7 Hy.	FC-9					26C44	C-27X

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Output	TR-36	Z1900 ①	A-2822 ③	T90F19/43	PCM2045	DY-16A	26S71	A-103X ①
T2	Yoke-Horiz. (25MH) (90°)-Vert. (34MH)	L-135	DF610 ②③	MDF-92 ②③	②③	②③	②③	Y-16 ②③	Y-45 & NW23 ①
	Rear Cover & Centering Device	MP-77							YC-1 & CL-1
	Yoke Clamp	ST-36							
T3	Horiz. Output	TR-37		X154 *			HO-297 *	FLY-146 *	D-134 *

① Use 6 : 1 turns ratio.
② Use original damping network
③ Connect same as original. Use original rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2			2		2	2	2
4			4		4	4	4
3			3		3	3	3
1			1		1	1	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No	
T4	4500Ω	3-4Ω	AT-33	Z1107 ①	A-3036	AU-601 ①	A-3877 ①	24S48	S-6X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRAV-LER PART No.	QUAM PART No.	
SP1	4" x 6" ①	PM	3-4Ω	SPK-17B ①	46A1	① Model 721-K-751
	5"	PM	3-4Ω	SPK-36 ②	5A07	② Alternate Part No. for Models 721-K-751, 721-T-741
	4"	PM	3-4Ω	SPK-49 ③	4A07	③ Model 1731A

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	TRAV-LER PART No.	FEDERAL PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No		
M1	115MA	SR-8 ①	124IAH ①	T350 ①	350A ①	① Selenium Type.	
			HA504 ②	TV-500 ②	40K ②	② Silicon Type	
M2	115MA	SR-8 ①④	124IAH ①	T350 ①	350A ①	③ Two used.	
			HA504 ②	TV-500 ②	40K ②	④ Not used in some versions.	
M3		SR-13 ③	KH615 ①	SD91 ①③			

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TRAV-LER PART No.	CBS PART No.	SYLVANIA PART No.	
M4	1N295 *	SC-6	1N80	1N295	Video Detector (Pigtail) * Some versions may use a CK-706A in this application.

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M5	Tuner	TA-43	VHF Ch. 943-38
	Tuner	TA-47	VHF Ch. 947-28
	Tuner	TA-75	VHF Ch. 975-48
	Antenna	L-136	Model 1731A

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

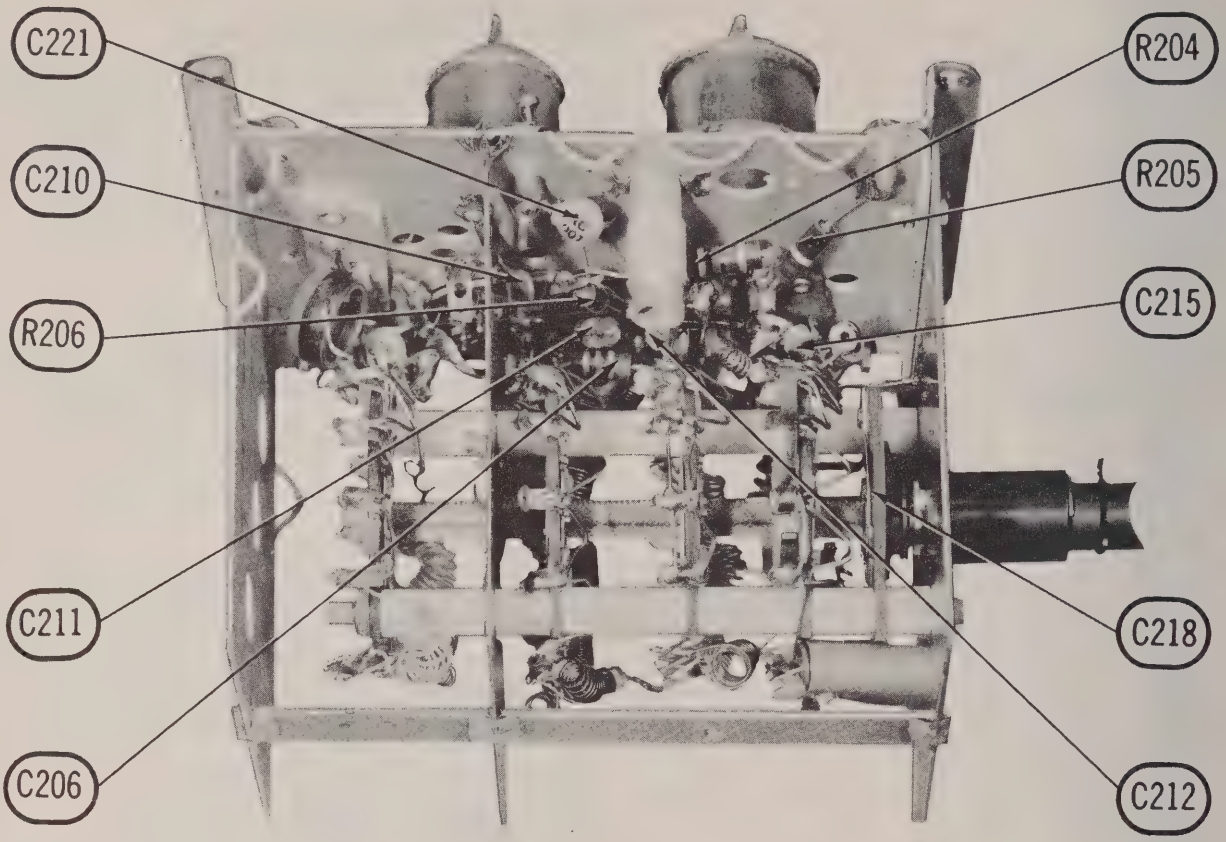
NAME	PART NO	DESCRIPTION
Safety Glass	DW-65T	Model 1731A
Safety Glass	DW-90T	Model 721-T-741
Mask	MP-114	Models 721-T-741, 721-K-751
Knob	K-254	Channel Selector, Models 721-T-741, 721-K-751
Knob	K-297	Channel Selector, Model 1731A
Knob	K-283	Fine Tuning, Models 721-T-741, 721-K-751
Knob	K-296	Fine Tuning, Model 1731A
Knob	K-300	Volume Off-On, Contrast, Vert. Hold & Horiz. Hold, Models 721-T-741, 721-K-751
Knob	K-281	Volume Off-On, Contrast, Vert. Hold & Horiz. Hold, Model 1731A
Leg	CH-68A	Model 721-K-751
Handle	CH-88	Model 1731A

WIRING DATA

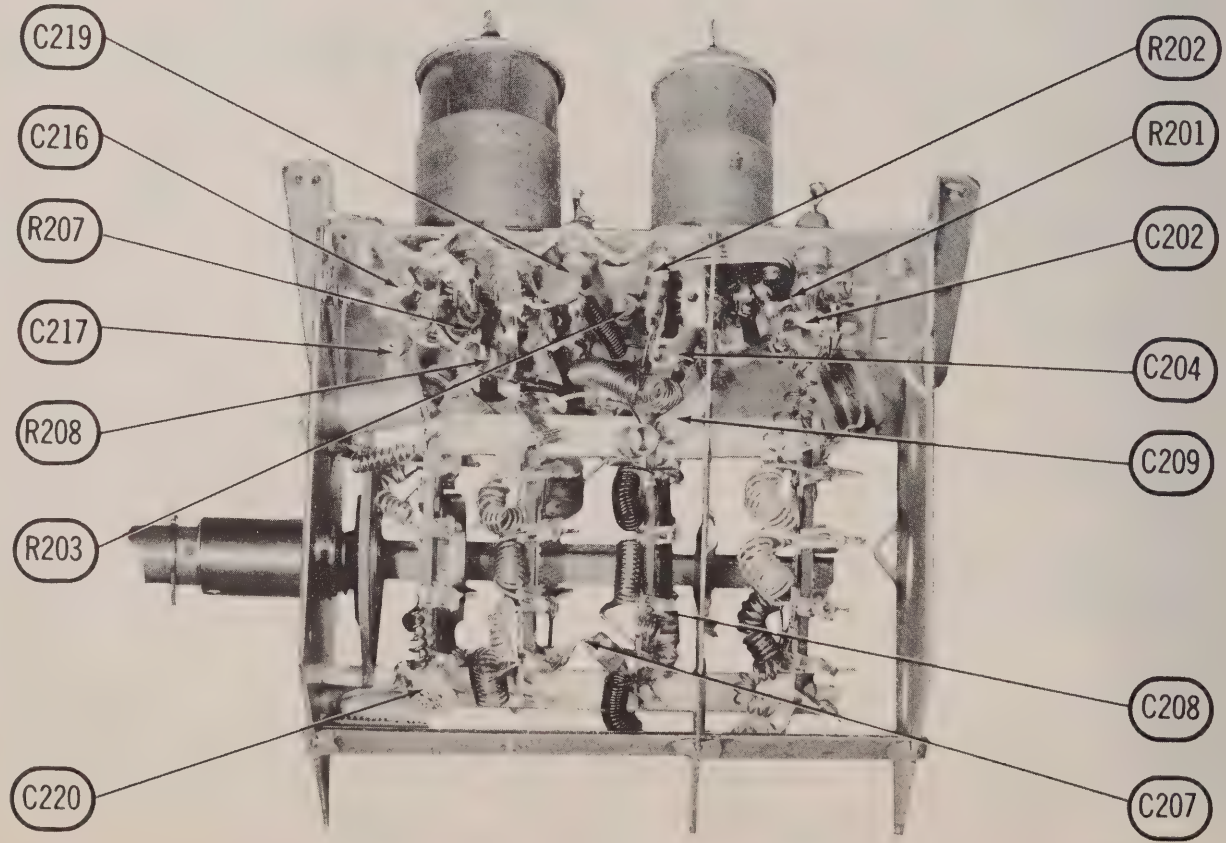
High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8734 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8674
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor

TRAV-LER MODELS 721-K-751, 721-K-769, 721-L-741, 1470, 1731A, 1732, 1739 (Ch. 943-38, 947-28, 975-48)

FOLDER 2



TUNER TA-43 LEFT SIDE



TUNER TA-43 RIGHT SIDE

MIXER PLATE COIL
C213
C201
C206
C202
K201
M203
K202
C209
C219
R201
C204
C203
C205
C208
C207
R203
R204
C212
R202
R206
C216
C214
R205
R208
C215
C211
R207
C210
C217
C220
C218

TUNER TA-75

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Set the Contrast fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44MC	42.75MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2, A3, A4, A5, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.

SOUND IF ALIGNMENT

Connect an output meter across the speaker voice coil.
Connect the DC probe of the VTVM to point (C). Common to chassis.
Tune in a strong air signal and adjust A6 for maximum output. If two peaks occur during this adjustment, use the one resulting in the highest meter reading on the VTVM. Reduce the signal strength by disconnecting the antenna.
Adjust A7 and A8 for maximum undistorted audio output. Further reduce the signal by moving the antenna lead further from the terminals and retouch A7 and A8 for maximum undistorted sound. Repeat entire procedure, if necessary.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
2.	.05mfd	High side to point (B). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to point (D). Common to chassis. (Use 0-10VAC scale)	A9	Adjust for MINIMUM deflection.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 7

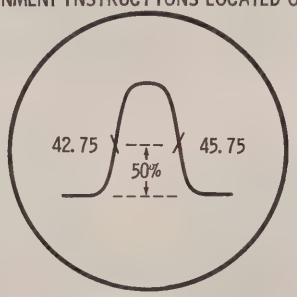
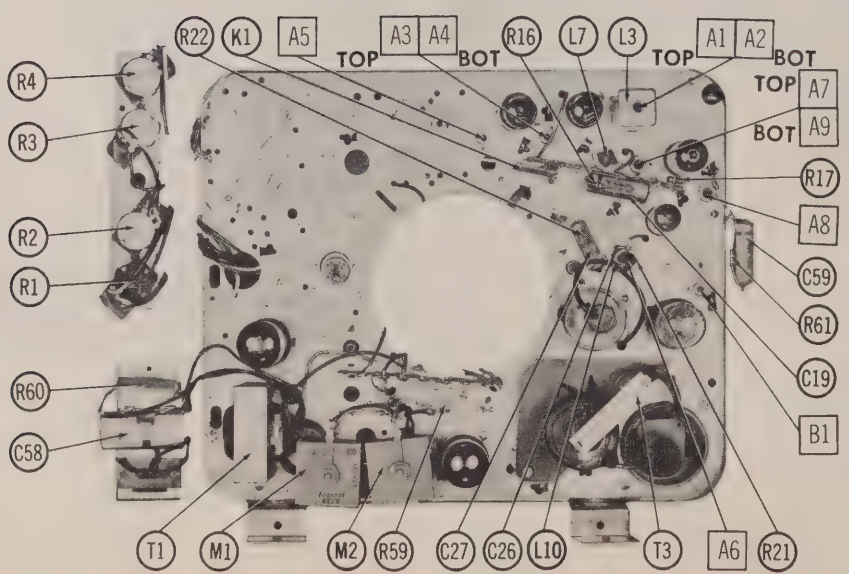


FIG. 1



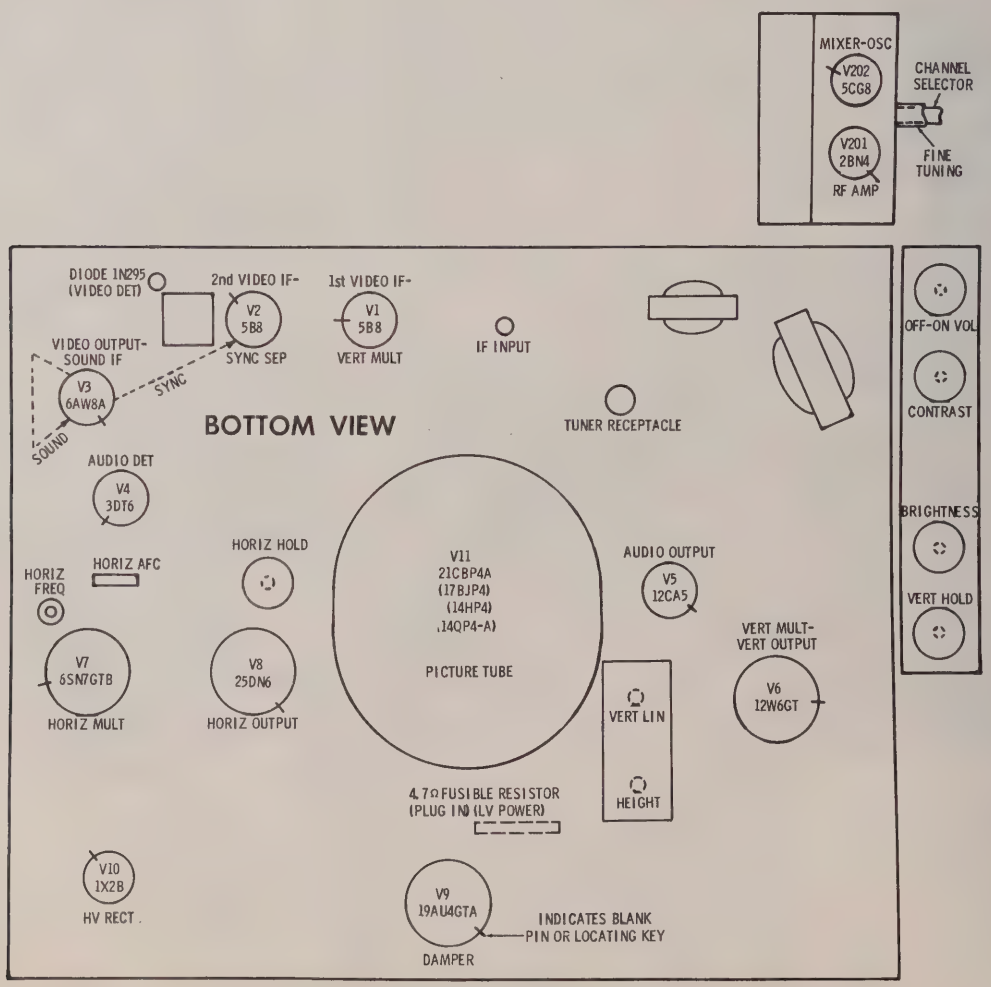
CHASSIS-TOP VIEW

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

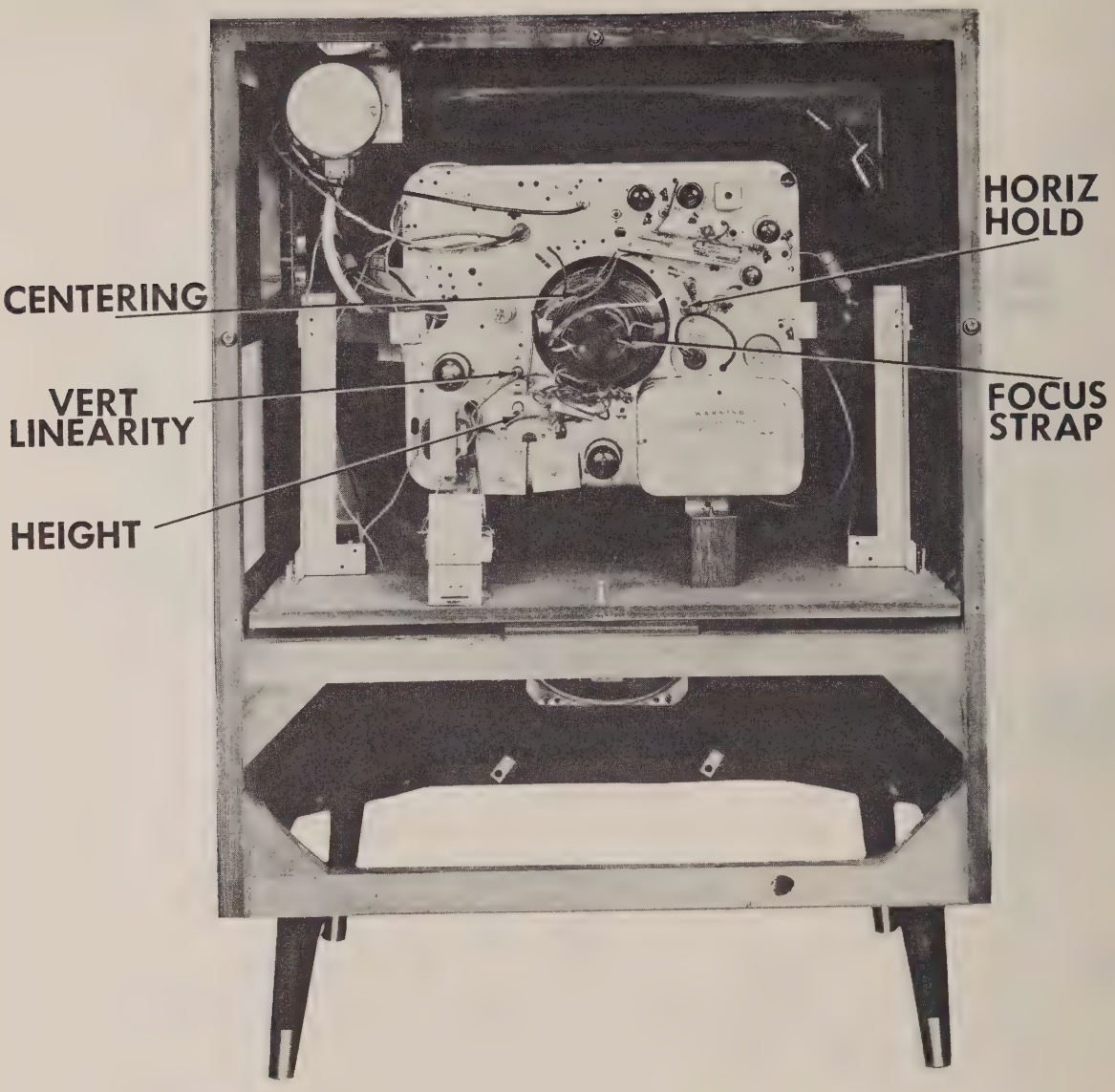
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5B8	0Ω	•1meg	†•2.2meg	7.5Ω	8.5Ω	1meg	56Ω	†170Ω	†170Ω
V2	5B8	0Ω	2.2meg	†9000Ω	7.5Ω	6.5Ω	.1Ω	180Ω	†170Ω	†170Ω
V3	6AW8A	0Ω	100K	†35K	5Ω	6.5Ω	• 40Ω	1.5meg	†20Ω	†3300Ω
V4	3DT6	4.2Ω	680Ω	5Ω	4Ω	‡700K	†2200Ω	680K		
V5	12CA5	120Ω	0Ω	10.5Ω	8.5Ω	0Ω	†170Ω	†240Ω		
V6	12W6GT	TP	13Ω	†275Ω	†20Ω	• 2.2meg	TP	10.5Ω	0Ω	
V7	6SN7GTB	3meg	†12K	1200Ω	• 110K	†47K	1200Ω	2.5Ω	4Ω	
V8	25DN6	TP	13Ω	0Ω	TP	440K	TP	18Ω	†1200Ω	TOP CAP †15Ω
V9	19AU4GTA	NC	TP	¶500K	NC	†0Ω	TP	21Ω	18Ω	
V10	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP †430Ω
V11	21CBP4A	1.5Ω	25Ω	Pin 6 ‡27K	Pin 10 ‡27K	Pin 11 • 800K	Pin 12 2.5Ω			
V201	2BN4	0Ω	1meg	0Ω	.5Ω	†1200Ω	0Ω	1meg		
V202	5CG8	10K	†5800Ω	0Ω	1.5Ω	.5Ω	†1200Ω	†10K	0Ω	230K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V9.
NC NO CONNECTION.
TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station, preferably with a test pattern.

Set the Horizontal Hold control at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

Check horizontal sync on other channels and if necessary, retouch B1 for best sync on all channels.

PHOTOFACT* Folder

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

MODEL 21TM (Ch. J)

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 443 FOLDER 3

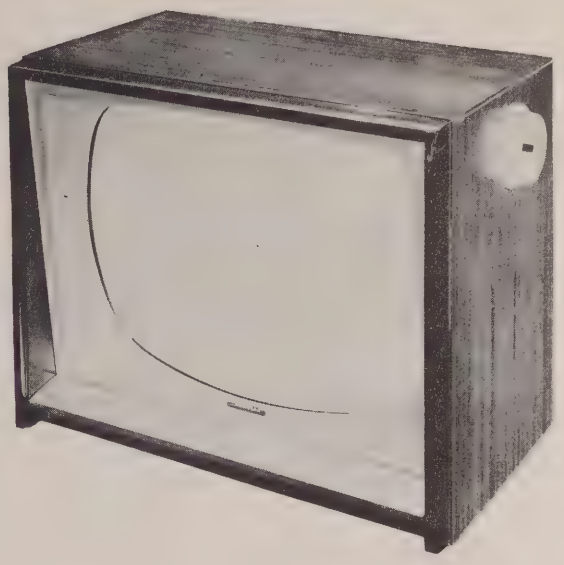
MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 21TM

1. Remove 4 metal screws holding side control escutcheon.
2. Remove 6 push-on type knobs.
3. Remove 9 wood screws holding rear cover. Remove the rear cover.
4. Remove speaker leads. Remove speaker by removing 2 wing nuts.
5. Remove 1 metal screw holding tuner from the outside. Remove 1 hex nut holding tuner at the inside top.
6. Remove 4 bottom bolts holding chassis board.
7. Remove 1 hex nut holding picture tube support bracket inside front.
8. Remove chassis.



MODEL 21TM (Ch. J)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Muntz Models 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. J)
MANUFACTURER	Muntz TV Inc., 1000 Grey Avenue, Evanston, Illinois
TYPE SET	Television Receiver
TUBES	VHF - Twelve, UHF - Thirteen
POWER SUPPLY	108-125 Volts AC, 60 Cycle RATING 130 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

For touch-up adjustment of the VHF Oscillator, it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)

SAFETY GLASS REMOVAL

Remove 4 wood screws holding metal trim strip at bottom of safety glass. Tilt glass out at bottom and remove.

AGC

The AGC may be varied by a Local-Distant switch. (For location, see tube placement chart.)

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the setting of the Horizontal Frequency slug. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENTS

To eliminate intercarrier buzz, adjust the Discriminator secondary (A10) located on top of chassis.

FUSE DEVICE

A 5Ω fusible resistor (R77) is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished by a centering device located behind the yoke.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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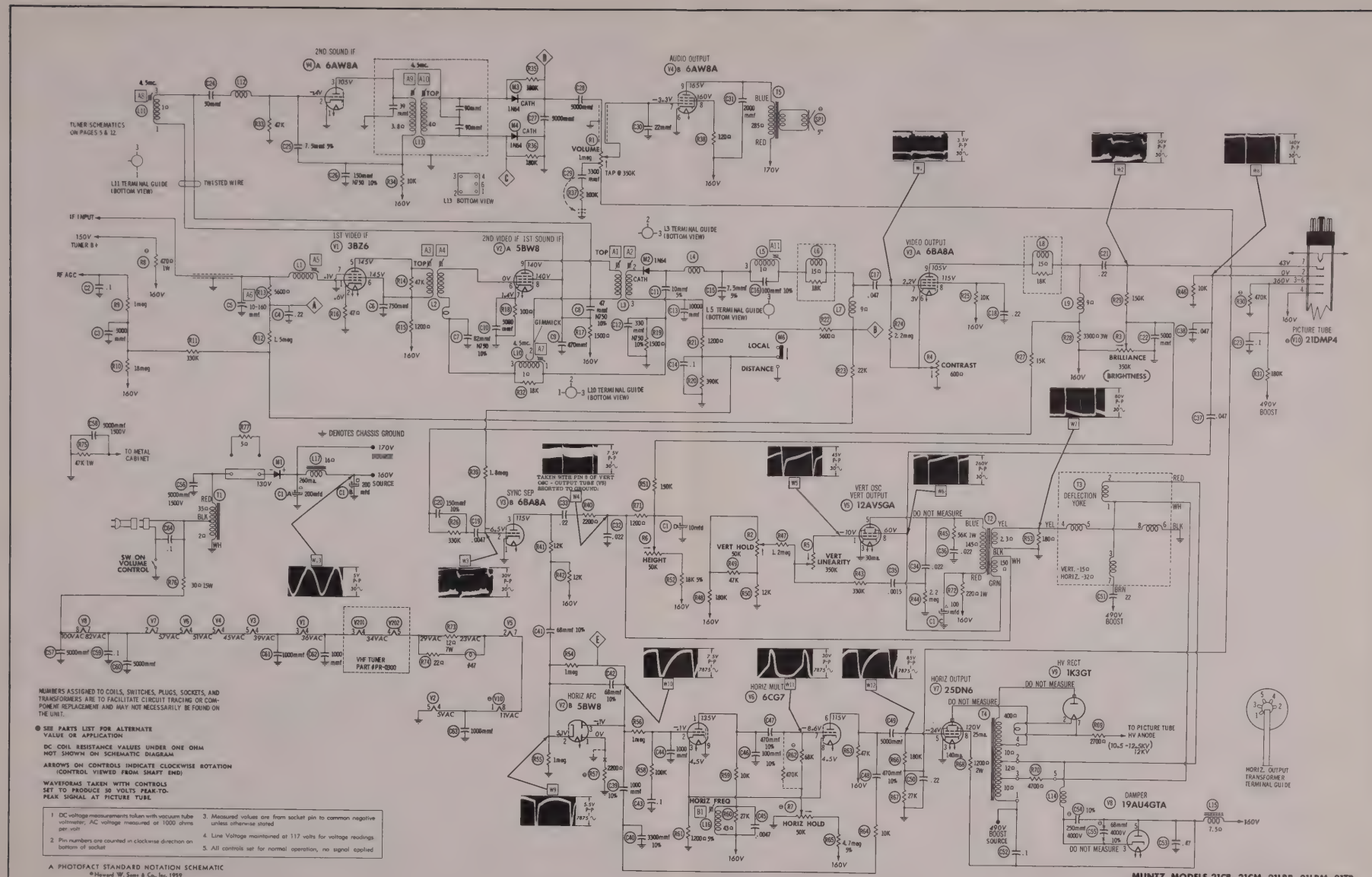
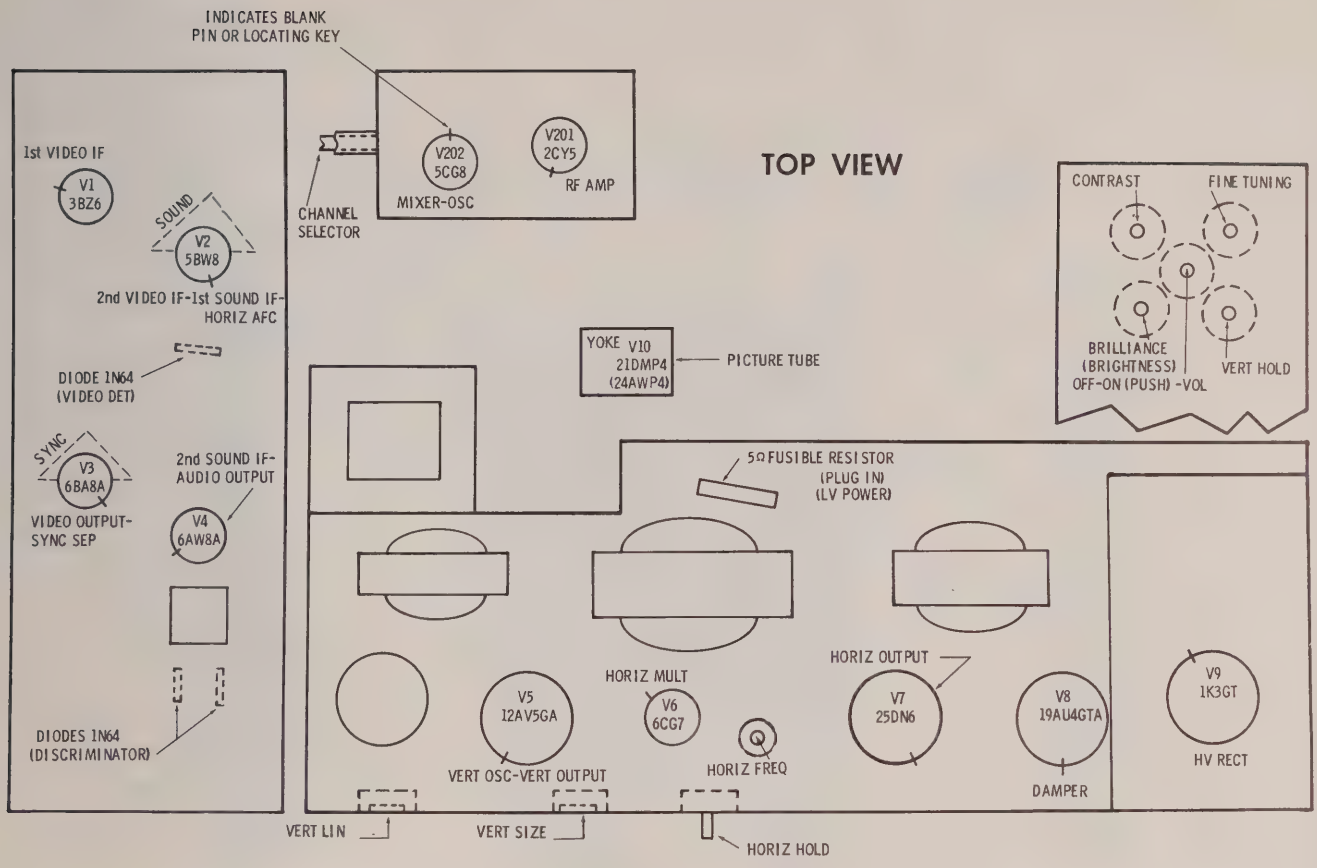

2ND SOUND IF
V1A 6AW8A
AUDIO OUTPUT
V4B 6AW8A
TUNER SCHEMATICS ON PAGES 5 & 12
L11 TERMINAL GUIDE (BOTTOM VIEW)
TWISTED WIRE
L13 BOTTOM VIEW
VOLUME 1meg
TAP @ 350K
IF INPUT
150V TUNER B+
RF AGC
1ST VIDEO IF
V1 3BZ6
2ND VIDEO IF 1ST SOUND IF
V2A 5BW8
L3 TERMINAL GUIDE (BOTTOM VIEW)
L10 TERMINAL GUIDE (BOTTOM VIEW)
L5 TERMINAL GUIDE (BOTTOM VIEW)
GIMMICK
LOCAL
DISTANCE
VIDEO OUTPUT
V3A 6A8A
CONTRAST 600Ω
BRILLIANCE 350K
BRIGHTNESS
PICTURE TUBE
V10 21DMP4
490V BOOST
DENOTES CHASSIS GROUND
TO METAL CABINET
SW ON VOLUME CONTROL
SYNC SEP
V3B 6BA8A
TAKEN WITH PIN 8 OF VERT OSC - OUTPUT TUBE (V5) SHORTED TO GROUND.
VERT OSC VERT OUTPUT
V5 12AV5GA
VERT HOLD 50K
VERT LINEARITY 350K
HEIGHT 50K
DO NOT MEASURE
DEFLECTION YOKE
VERT. -150 HORIZ. -320
VHF TUNER PART #PR-1300
HORIZ AFC
V7B 5BW8
HORIZ MULT.
V6 6CG7
HORIZ FREQ
HORIZ HOLD 50K
HORIZ OUTPUT
V7 25DN6
HV RECT
V9 1K3GT
TO PICTURE TUBE HV ANODE (10.5 -12.5KV) 12KV
DAMPER
V8 19AU4GTA
HORIZ. OUTPUT TRANSFORMER TERMINAL GUIDE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1959
MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

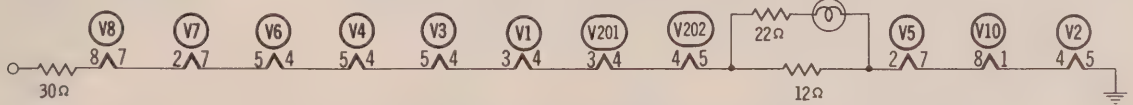
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (5Ω), Rectifier (B+)

SWEEP FAILURE
No raster, has sound V2, V6, V7, V8, V9, V10, Rectifier (B+)
No vertical deflection V5
Poor vert. linearity or foldover V5
Poor horiz. linearity or foldover V6, V7, V8
Narrow picture V6, V7, V8, Rectifier (B+)
Vert. off freq. V5
Horiz. off freq. V6

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det)
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V10
Has pic, no sound V2, V4, Diodes (Discriminator)

SYNC FAILURE
No vert. sync V3
No horiz. sync V3, V2
No vert. or horiz. sync V3

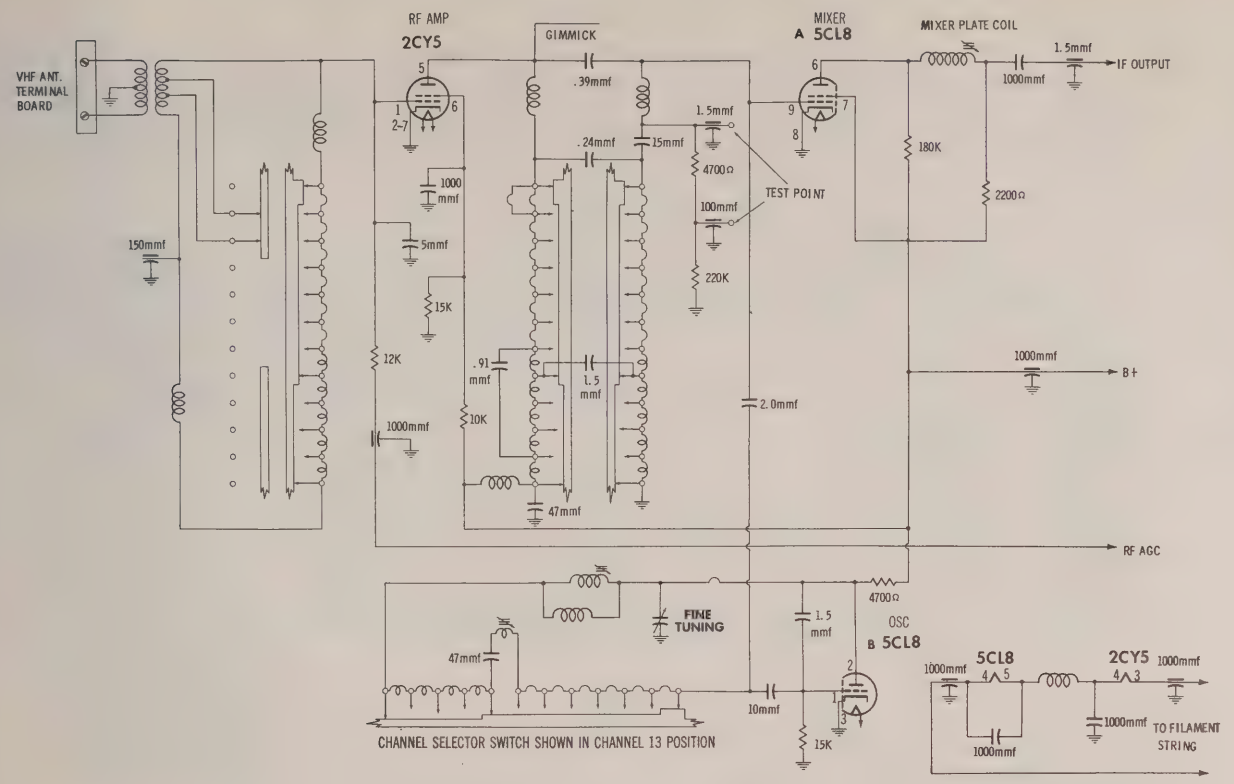
This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

FOLDER 3

VERTICAL CHASSIS - CAPACITOR & ALIGNMENT IDENTIFICATION



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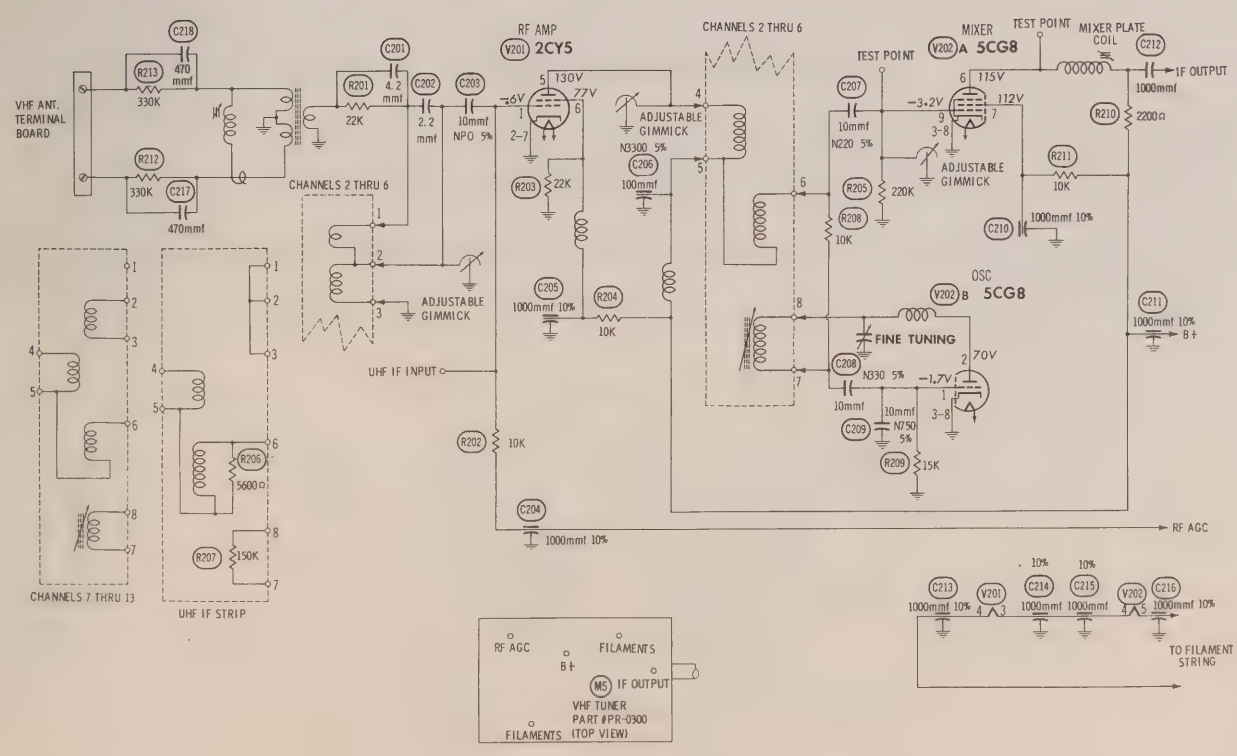
VHF TUNER PR-0293



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VHF TUNER PR-0300

TUNER PARTS LIST AND DESCRIPTIONS

PR-0300

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.		

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.		

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MUNTZ PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	4.2								5TCCB-V42S*	
C202	2.2					TCZ-2R2	C10V22C	CNO-522	5TCCB-V22	
C203	10		NPO 5%			DTZ-10	C10Q1C	CNO-410	5TCC-Q1	
C204	1000		10%		EF-001	MFT-1000			503C-D1	
C205	1000		10%		EF-001	MFT-1000			503C-D1	
C206	100		N3300 5%							
C207	10		N220 5%							
C208	10		N330 5%			TCA-10				
C209	10		N750 5%			TCN-10	C10Q1U	CN7-410	5TCU-Q1	
C210	1000		10%		EF-001	MFT-1000			503C-D1	
C211	1000		10%		EF-001	MFT-1000			503C-D1	
C212	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C213	1000		10%		EF-001	MFT-1000			503C-D1	
C214	1000		10%		EF-001	MFT-1000			503C-D1	
C215	1000		10%		EF-001	MFT-1000			503C-D1	
C216	1000		10%		EF-001	MFT-1000			503C-D1	
C217	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C218	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MUNTZ PART No.	NOTES
	OHMS	WATT		
R201	22K			
R202	10K			
R203	22K			
R204	10K			
R205	220K			
R206	5600Ω			
R207	150K			

ITEM No.	RATING		MUNTZ PART No.	NOTES
	OHMS	WATT		
R208	10K			
R209	15K			
R210	2200Ω			
R211	10K			
R212	330K			
R213	330K			

TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

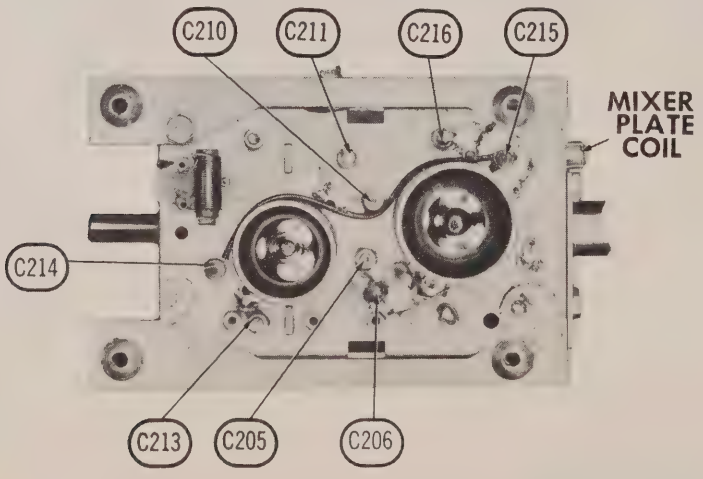
The individual channel adjustment screws are accessible one at a time, thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted and adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



TUNER PR-0300 TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

Suggested Alignment Tools:
A1 thru A5, A6 thru A10...GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A6 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

VIDEO IF ALIGNMENT

Connect the negative lead of a 5.5 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 6 (grid) of 2nd Video IF. Low side to chassis.	44MC (10MC Swp)	41.25MC 42.5MC 43.0MC 44.75MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum response similar to Fig. 1 peaking at approximately 44.25MC.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis.	"	"	"	"	A3, A4	Adjust for response similar to Fig. 2.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	"	"	"	A5	"
4.	"	"	"	"	"	"	A6, & Mixer Plate Coil	Adjust A6 for maximum response similar to Fig. 3. Adjust Mixer Plate Coil to control steepness of low frequency side of curve. If necessary, retouch A5 to obtain desired response.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to point (B). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point (C). Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
6.	"	"	"	"	DC probe thru 10K to point (D). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and adjust the Fine Tuning until a 4.5MC beat pattern can be seen on the screen. Adjust A11 for MINIMUM beat interference.

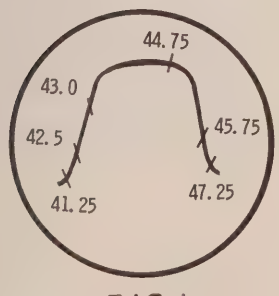


FIG.1

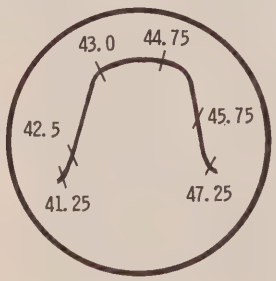


FIG.2

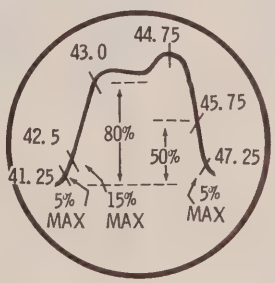


FIG.3

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

FOLDER 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp -	3BZ8	
V2	2nd Video IF Amp - 1st Sound IF-Horiz. AFC	5BW8	
V3	Video Output-Sync Sep.	6BA8A	
V4	2nd Sound IF-Audio Output	6AW8A	

ITEM No	USE	TYPE	NOTES
V5	Vert. Osc. - Vert. Output	12AV5GA	
V6	Horiz. Mult.	6CG7	
V7	Horiz. Output	25DN6	
V8	Damper	19AU4GTA	
V9	HV Rect.	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	MUNTZ PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V10	21DMP4 24AWP4			21DMP4 ①	① "Silver Screen"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	MUNTZ PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲200	150	CE-0042	AFH54-38-9	D0338	FP41L 8		TVLS-4438.1*	
B	▲200	150							
C	▲100	150							
D	10	75							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING			REPLACEMENT DATA					NOTES
	CAP.	VOLT	TOL	MUNTZ PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	SPRAGUE PART No.	
C2	.1	200		CP-0026	P288N-1	DF-104	CUB2P1	GEM-201	3TM-P1	
C3	5000			CC-0060	BPD-005	DD-502	BYA10D6	B-250	5HK-D5	
C4	.33	300		CP-0055	P288N-33		CUB2P22	GEM-3023	3TM-P23	
C5	10-160			C7-0023						
C6	750			CC-0234	DI-750	DD-751	L10T75	JL-375	5GA-T75	
C7	51		N750 10%	CC-0157	N750-S1 82	TCN-82	C10Q82U	CN7-482		
C8	47		N750 10%	CC-0156	N750-DI-47	TCN-47	C10Q47U	CN7-447	5TCU-Q47S 10% *	
C9	470			CC-0159	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C10	5000			CC-0060	BPD-005	DD-502	BYA10D5	B-350	5HK-D5	
C11	10		5%	CC-0154	NPO-SI 10	TCZ-10	C10QIC	CNQ-410	5TCC-Q5S 5% *	
C12	330		N750 10%	CC-0160	N750-DI-330	TCN-330	C10T33U	CN7-333	5TCU-T33S 10% *	
C13	10000			CP-0057	BPD-01	DD-103	BYA10S1	B-310	5HK-S1	
C14	.1	200		CP-0026	P288N-1	DF-104	CUB2P1	GEM-201	3TM-P1	
C15	7.5		5%	CC-0153		DD-7R5			5GA-Y7S8 5% *	
C16	100		10%	CM-0054	1469-0001	DD-101	22R5T1	MCB235	MS-31	
C17	.047	200		CP-0068	P288N-047	DF-503	CUB2S47	GEM-4147	3TM-S47	
C18	.33	300		CP-0055	P288N-33		CUB2P33	GEM-3023	3TM-P23	
C19	.0047	600		CPM-0113	P688N-0047	DS-472	CUB6D47	GEM-6347	6TM-D47	
C20	150		10%	CC-0222	DI-150	DD-151	L10T15	JL-315	5GA-T15S 10% *	
C21	.33	400			P488N-33		CUB4P22	GEM-4023	4TM-P22	
C22	5000			CC-0060	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C23	.1	600		CP-0013	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C24	50			CC-0134	HI 50	DS-500	L10Q5	UC-545	5GA-Q5	
C25	7.5		5%	CC-0153		DD-7R5			5GA-Y7S8 5% *	
C26	150		N750 10%	CC-0158	N750-DI-150	TCN-150	C10T15U	CN7-315	5TCU-T15S 10% *	
C27	5000			CC-0185	BPD-005	DD-502	BYA10D5	B-350	5HK-D6	
C28	5000			CC-0185	BPD-005	DD-502	BYA10D6	B-250	5HK-D6	
C29	3300			CC-0188	BPD-0033	DD-332	BYA10D33	B-233	5HK-D33	
C30	22			CC-0185	HI 22	DS-220	L10Q22	UC-5422	5GA-Q22	
C31	2000			CC-0180	BPD-002	DD-202	BYA10D2	B-210	5HK-D22	
C32	.022	200		CPM-0108	P288N-022		CUB4S22	GEM-2122	4TM-S22	
C33	.22	200		CP-0055	P288N-22		CUB2P22	GEM-3022	3TM-P22	
C34	.022	600		CPM-0108	P688N-022		CUB6S22	GEM-6122	6TM-S22	
C35	.0015	600		CPM-0184	P688N-0015	DS-152	CUB6D15	GEM-6215	6TM-D15	
C36	.022	600		CP-0053	P688N-022		CUB6S22	GEM-6122	6TM-S22	
C37	.047	600		CP-0064	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C38	.047	200		CP-0068	P288N-047	DF-503	CUB2S47	GEM-2147	3TM-S47	
C39	100		10%	CC-0194	DI-1000		PM6D1	JL-210	5TM-D1	
C40	3300		10%	CC-0226	DI-3300		PM6D33	JL-233	5TM-D33	
C41	68		10%	CC-0146	DI-68	DD-680	L10Q68	CNQ-468	5GA-Q68S 10% *	
C42	68		10%	CC-0146	DI-68	DD-680	L10Q68	CNQ-468	5GA-Q68S 10% *	
C43	.1	200		CP-0026	P288N-1	DF-104	CUB2P1	GEM-201	3TM-P1	
C44	1000			CC-0117	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C45	.0047	600		CPM-0113	P688N-0047	DS-472	CUB6D47	GEM-6247	6TM-D47	
C46	100		10%	CC-0063	DI-100	DD-101	L10T1	JT-531	5TM-T1	
C47	470		10%	CM-0048	1464-00047	MD-471	22R5Q47	JL-347	MS-347	
C48	470		10%	CM-0048	1464-00047	MD-471	22R5Q47	JL-347	MS-347	
C49	5000			CC-0060	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C50	.22	200		CP-0055	P288N-22		CUB2P22	GEM-3022	3TM-P22	
C51	.22	600		CP-0090	P688N-22		CUB6P22	GEM-6022	6TM-P22	
C52	.1	400		CP-0034	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C53	.47	300		CP-0046	P288N-47		CUB2P47	GEM-3047	3TM-P47	
C54	250	4000	10%			DD60-251			50GA-T25S 10% *	
C55	68	4000	10%		HVD-60-68	DD60-680		8DY-468		
C56	5000	1500		CC-0133	DAC-9	DDH-502	HVE16D5	GEM-1625	30HK-D5	
C57	5000			CC-0060	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C58	5000	1500		CC-0133	DAC-9	DDH-502	HVE16D5	GEM-1625	30HK-D5	
C59	.1	400		CP-0034	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C60	5000			CC-0060	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C61	1000			CC-0131	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C62	1000			CC-0131	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C63	1000			CC-0131	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C64	.1	600		CP-0013	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	

① In some versions C54 and C55 are replaced with a single 300mmf 10% ② 4000V (Part #CC-0227).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MUNTZ PART No	CENTRALAB PART No.	CLAROSTAT PART No	IRC PART No.	MALLORY PART No	
R1A	1meg	½	VC-0069					Volume, Tap ② 350K
B	Switch							Push-Push Off-On
R2A	50K	½	VC-0067	AB-31	B47-50K-S	QI1-123	PTA54L	Vert. Hold
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R3A	350K	½	VC-0066	AB-59	B47-500K-S	QI1-132	PTA55L	Brilliance (Brightness)
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R4A	600Ω	½	VC-0064	AB-4	B47-500-S	QI1-103	PTA52L	Contrast
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R5A	350K	½	VC-0065	AB-59	B47-500K-S	QI1-132	PTA55L	Vert. Lin.
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R6A	50K	½	VC-0068	BX-31	B47-50K-S	QI1-123	PTA54L	Height
B	Shaft			Not Req.	Not Req.	TQ	Not Req.	
R7A	50K	½	VC-0067	AB-31	B47-50K-S	QI1-123	PTA54L	Horiz. Hold, Note 1
B	Shaft			AK-19	Not Req.	TQ	Not Req.	

Note 1. Some versions may use 50K in this application (Part #VC-0062-1).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MUNTZ PART No.	NOTES
	OHMS	WATT		
R8	470Ω	1		Note 1
R9	1meg		RC-1004-18	
R10	18meg		RC-1808-18	
R11	330K		RC-3304-18	
R12	1.5meg		RC-1504-18	
R13	5800Ω		RC-5801-18	
R14	47K		RC-4703-18	
R15	1200Ω		RC-1201-18	
R16	47Ω		RC-047-18	
R17	1500Ω		RC-1501-18	
R18	100Ω		RC-100-18	
R19	1500Ω		RC-1501-18	
R20	390K		RC-3904-18	
R21	1200Ω		RC-1201-18	
R22	5600Ω		RC-5601-18	
R23	22K		RC-2203-18	
R24	2.2meg		RC-2204-18	
R25	10K		RC-1003-18	
R26	330K		RC-3303-18	
R27	15K		RC-1502-18	
R28	33000Ω	3	RG-3301-13	
R29	150K		RC-1503-18	
R30	470K		RC-4703-18	Note 2
R31	180K		RC-1803-18	
R32	18K		RC-1802-18	
R33	47K		RC-4702-18	
R34	10K		RC-1002-18	
R35	180K		RC-1803-18	
R36	180K		RC-1803-18	
R37	100K		RC-1003-18	
R38	120Ω		RC-120-18	
R39	1.8meg		RC-1804-18	
R40	2200Ω		RC-2201-18	
R41	12K		RC-1202-18	
R42	12K		RC-1202-18	

ITEM No.	RATING		MUNTZ PART No.	NOTES
	OHMS	WATT		
R43	330K		RC-3303-18	
R44	2.2meg		RC-2204-18	
R45	56K	1	RC-5602-11	
R46	10K		RC-1002-18	
R47	1.8meg		RC-1804-18	
R48	180K		RC-1803-18	
R49	47K		RC-4702-18	
R50	12K		RC-1202-18	
R51	150K		RC-1503-18	
R52	18K 5%			
R53	180Ω		RC-180-18	
R54	1meg		RC-1004-18	
R55	1meg		RC-1004-18	
R56	1meg		RC-1004-18	
R57	2200Ω		RC-2201-18	Note 3
R58	100K		RC-1003-18	
R59	10K		RC-1002-18	
R60	27K		RC-2702-18	
R61	1200Ω 5%		RC-1201-58	
R62	68K		RC-6802-18	Note 4
R63	47K		RC-4702-18	
R64	10K		RC-1002-18	
R65	4.7meg 5%			
R66	180K		RC-1803-18	
R67	27K		RC-2702-18	
R68	1200Ω	3	RC-1201-13	
R69	2700Ω		RC-2701-18	
R70	4700Ω		RC-4701-18	
R71	1200Ω		RC-1201-18	
R72	220Ω	1	RC-220-11	
R73	1Ω	7	RW-012-17	
R74	22Ω		RC-022-18	
R75	47K	1	RC-4702-11	
R76	30Ω	15	RW-0047	
R77	5Ω		RW-005-13	

Note 1. Some versions may use 1000Ω 1W in this application (Part #RC-1001-11).
Note 2. Some versions may use 330K in this application (Part #RC-3303-18).
Note 3. Not used in some versions.
Note 4. Some versions may use 82K in this application (part #RC-8202-18).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MUNTZ PART No.	Meissner PART No	Merit PART No.	Miller PART No.	Ram PART No.	
L1	1st Video IF	LC-0102		TV-131	VF-4		
L2	2nd Video IF	LC-0103					
L3	3rd Video IF	LC-0104					
L4	RF Choke	LC-0091		SW-531			4.7 Microhenries
L5	4.5MC Trap	LC-0105					
L6	Series Peaking Coil	LC-0101-2	19-3250 ▲	TV-185 ▲	6130 ▲	VP-6 ▲	270 Microhenries, wound on 18K resistor
L7	Shunt Peaking Coil	LC-0101-1	19-3125	TV-195	6153	VP-4	120 Microhenries
L8	Series Peaking Coil	LC-0101-2	19-3250 ▲	TV-185 ▲	6130 ▲	VP-6 ▲	270 Microhenries, wound on 18K resistor
L9	Shunt Peaking Coil	LC-0101-1	19-3125	TV-195	6153	VP-4	120 Microhenries
L10	1st Sound IF	LC-0105					
L11	2nd Sound IF	LC-0105		SW-531			4.7 Microhenries
L12	RF Choke	LC-0091					
L13	Discriminator	LC-0076					10 Microhenries
L14	Resonant Choke	LC-0098					2 Millihenries
L15	RF Choke	LC-0097					

▲ Parallel with 18K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MUNTZ PART No.	Meissner PART No	Merit PART No.	Miller PART No.	Ram PART No	Thordarson PART No	
L16	43Ω		LO-0077		TV-165 *	6210 *	H-102 *	HS-5 *	Horiz. Freq. * Enlarge mtg. hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI	SEC. 1	SEC. 2	MUNTZ PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	140V ② .700A tap ③ 117V ④ 1.3A			TP-0034						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA								
		MUNTZ PART No	Halldorson PART No	Merit PART No	Ram PART No	Rogers PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert. Output	TO-0056								
T3	Yoke-Horiz (20MH) (110°)-Vert. (15MH)	LC-0106			Y-110 ① ②		DY-27A ① ②	Y-52 ① ②	Y-60 ② YC-110
	Rear Cover & Centering Device	PR-0296							
	Yoke Clamp	SP-0079							CL-1
T4	Horiz. Output	TO-0055							D-95 ③ *

① Remove Horizontal and Vertical Damping Networks from yoke. Use original rear cover and centering device.
② Connect same as original.
③ Drill new mounting hole(s).

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4							5
2							4
3							YCT
1							1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MUNTZ PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	6000Ω	3-4Ω	TO-0049-2	Z1007	A-3019	AU-804	A-8092	26849	S-5Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MUNTZ PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	SK-0025-1 ①	52AI	① Used in Models 21TB, TM
	6"	PM	3-4Ω	SK-0026 ②	6AI	② Used in Models 21LBB, LBM, 21CB, CM
	3½"	PM	3-4Ω	SK-0031 ③	3AI5TZ4. 4	③ Used in Models 21LBB, LBM

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	MUNTZ PART No	FEDERAL PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No.	
M3	260MA	CX-0037 ①	HA-504 ①	SD-500	40K ①	① Silicon Type

CRYSTAL DIODES

ITEM No.	ORIG TYPE	REPLACEMENT DATA			NOTES
		MUNTZ PART No	CBS PART No	SYLVANIA PART No	
M2	1N64	CX-0036 ①	1N64	1N80	Video Det. (Pigtail,
M3	1N64	CX-0036 ①	1N64	1N80	Sound Disc (Pigtail,
M4	1N64	CX-0036 ①	1N64	1N80	Sound Disc. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MUNTZ PART No.	NOTES
M5	Tuner	PR-0300	VHF
	Tuner	PR-0293	VHF
	Tuner	PR-0298	VHF
	Tuner	PR-0302	UHF
M6	Switch	SW-0030	Local-Distant, SPDT

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

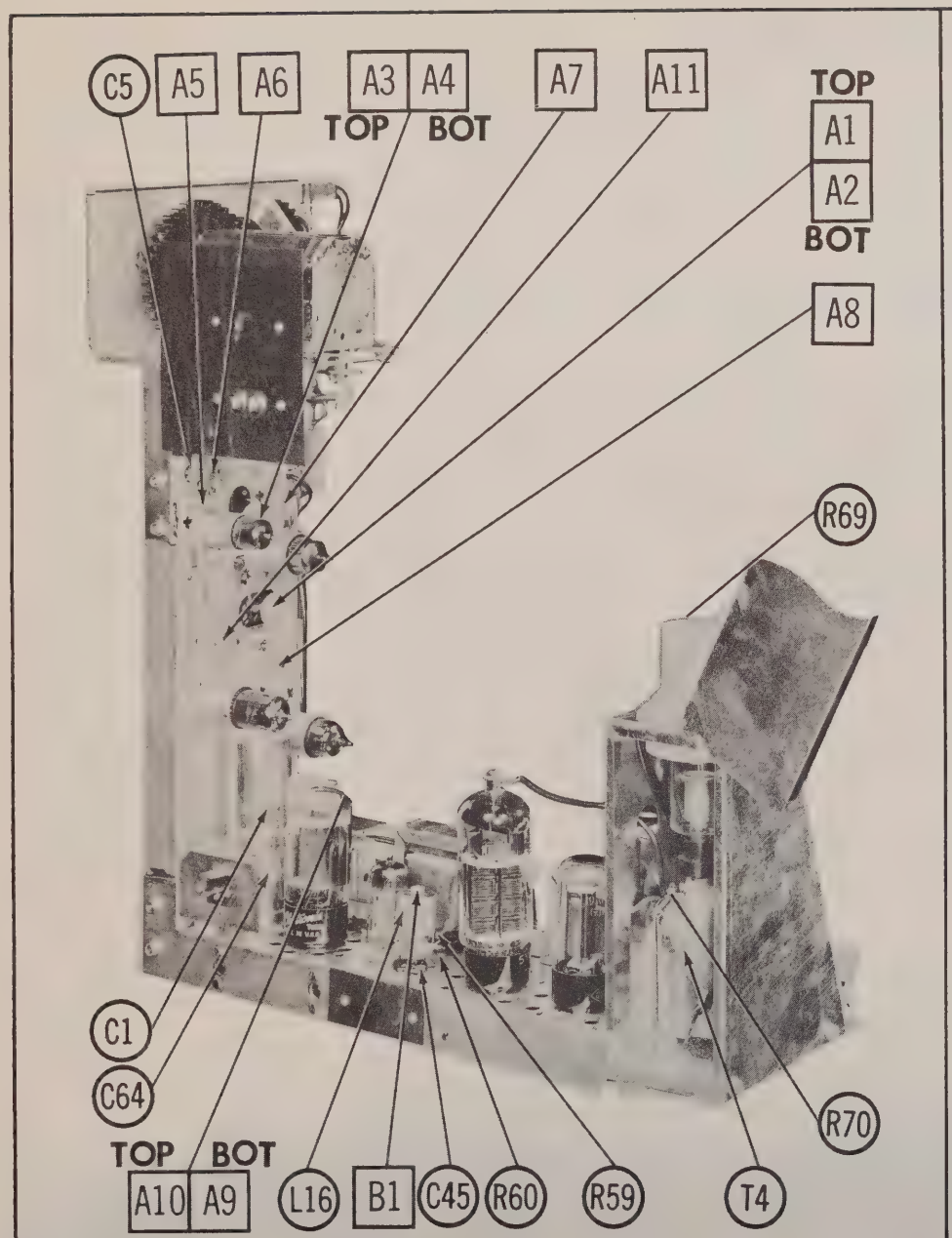
NAME	PART NO	DESCRIPTION
Safety Glass	WG-0019-4	Clear, Models 21TB, TM
Safety Glass	WG-0020-4	Tinted, Models 21LBB, 21LBM, 21CB, CM
Mask	ES-0078	21" Models
Knob	KB-0081	UHF Indicator
Knob	KB-0079	Fine Tuning, Contrast
Knob	KB-0079-2	Off-On-Volume
Knob	KB-0079-3	Vert. Hold, Brilliance (Brightness)
Cabinet	CW-0097	Models 21CB, CM
Cabinet	CW-0098	Models 21TB, TM
Cabinet	CW-0101	Models 21LBB, LBM
Leg	AS-0525	7" Wood with ferrule
Leg	AS-0527	11" Brass with ferrule

WIRING DATA

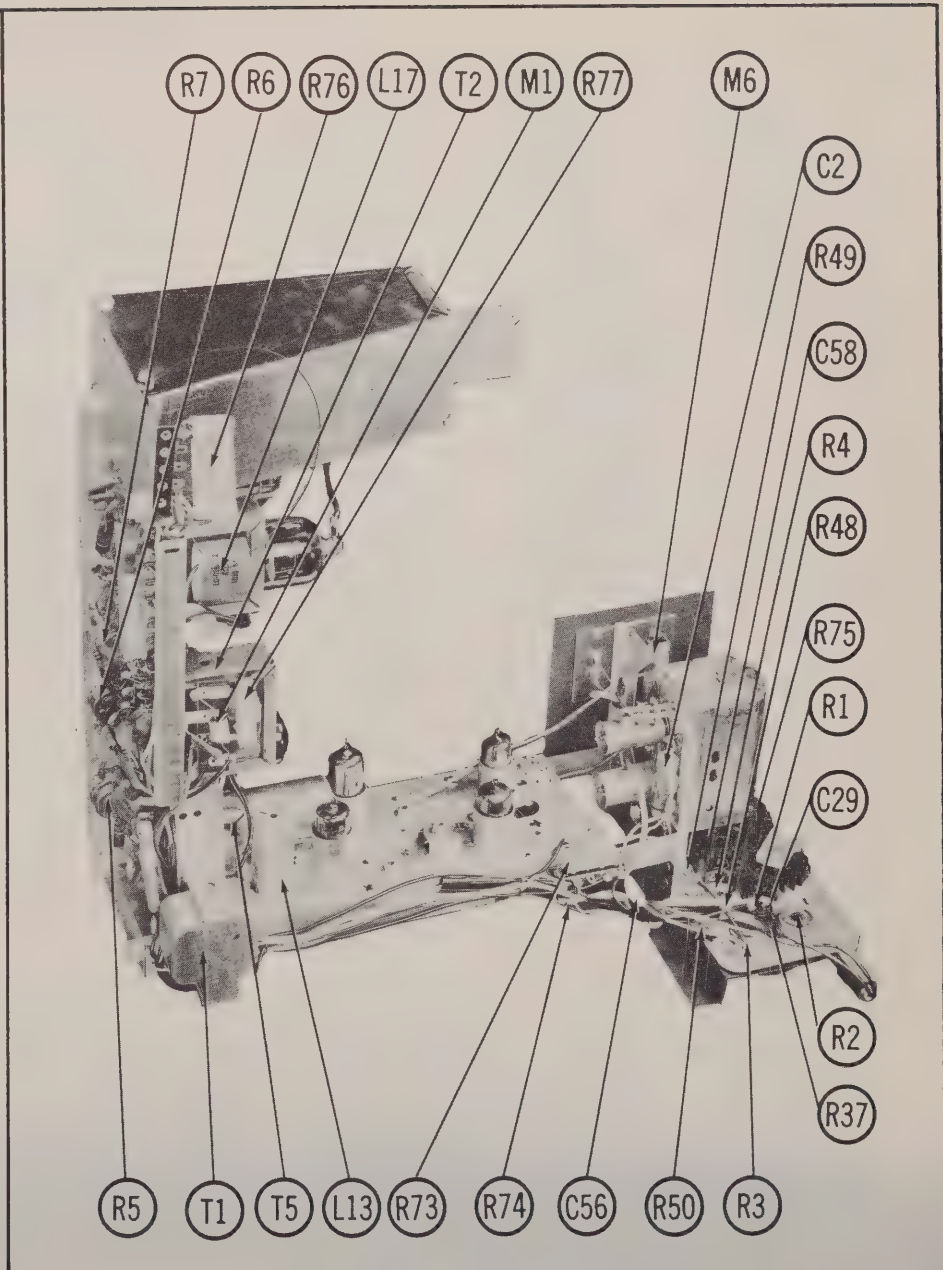
High Voltage Lead	Use BELDEN No 8869
Shielded Hook-up Wire	Use BELDEN No 8885 (Single Conductor) 8738 (Two Conductor,
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No 8874
300Ω Tuner Input Lead	Use BELDEN No 8225
300Ω Antenna Lead-in	Use BELDEN No 8230 or 8275
Antenna Rotor Cable	Use BELDEN No 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor

MUNTZ MODELS 21CB, 21CM, 21LBB, 21LBM, 21TB, 21TM, 24CB, 24CM, 24TB, 24TM (Ch. "J")

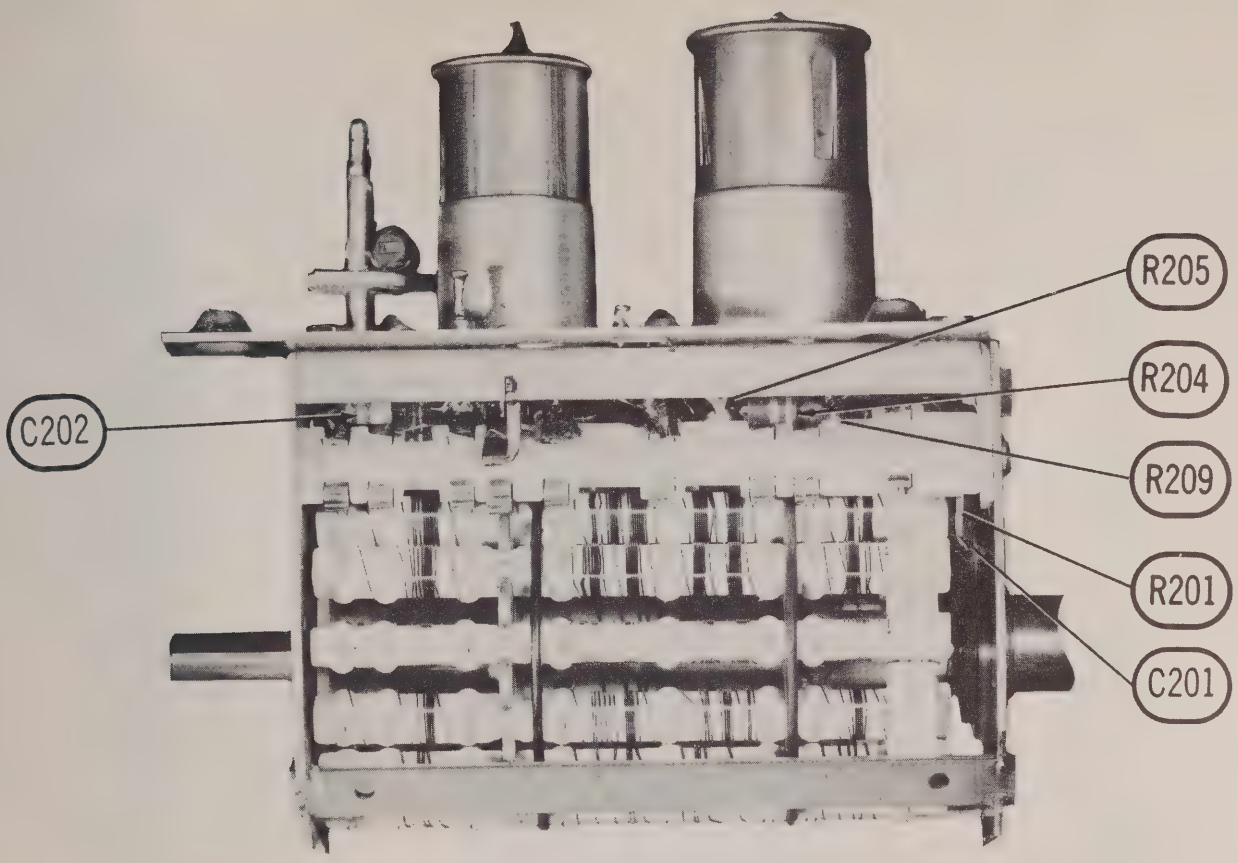
FOLDER 3



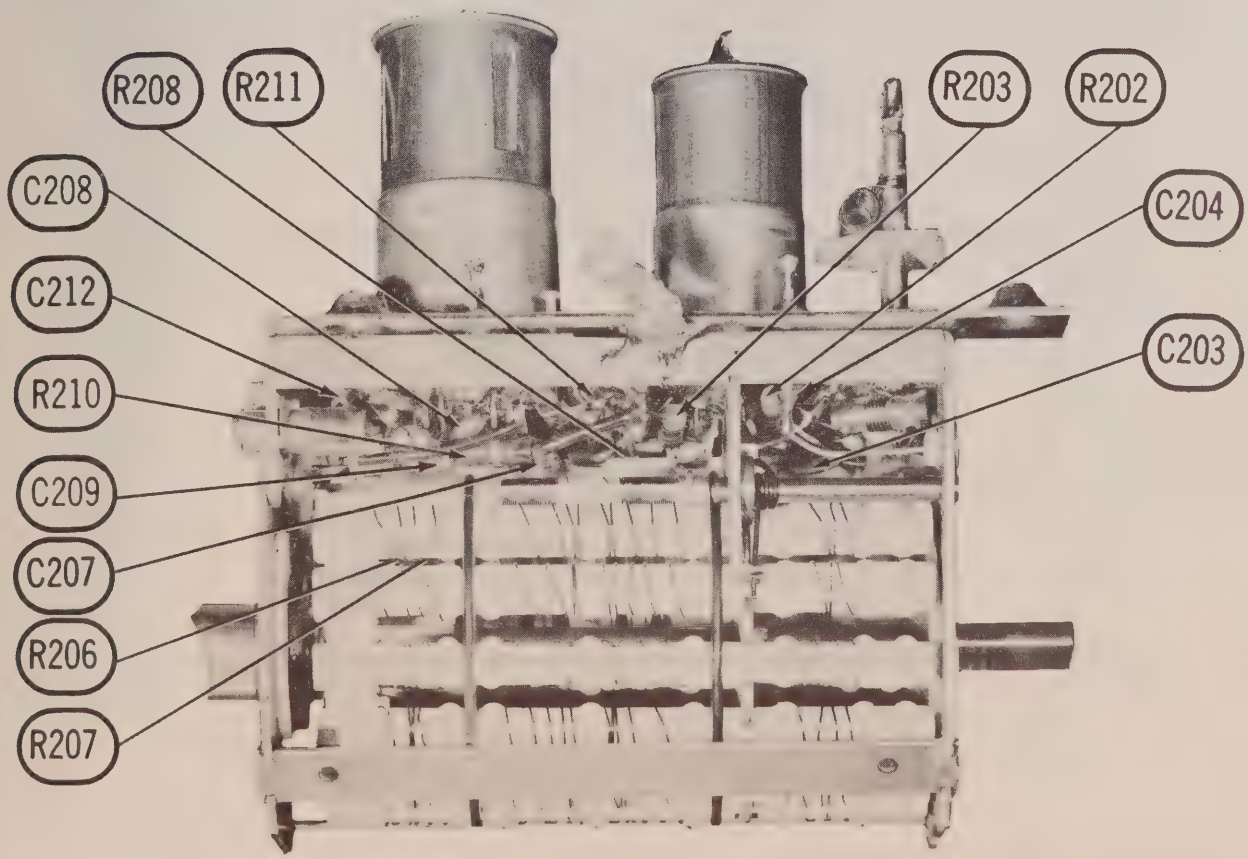
CHASSIS - REAR VIEW



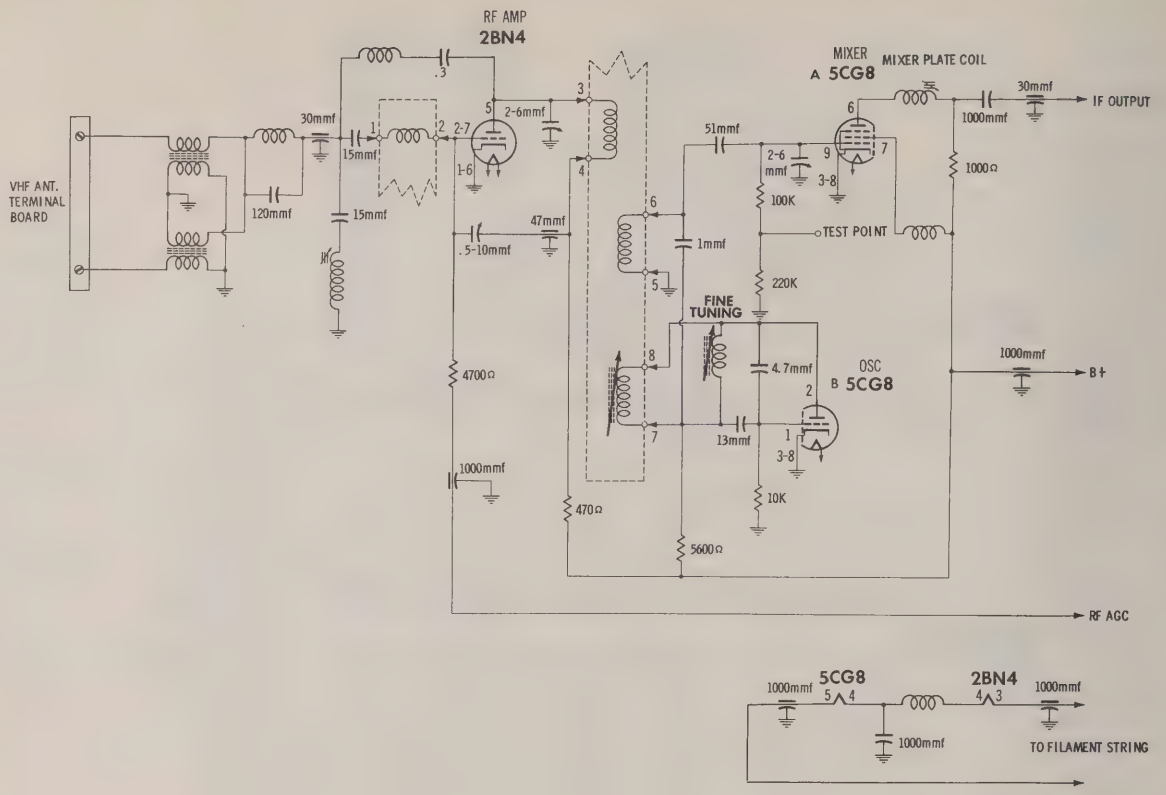
CHASSIS - FRONT VIEW



TUNER PR-0300 - LEFT SIDE



TUNER PR-0300 - RIGHT SIDE



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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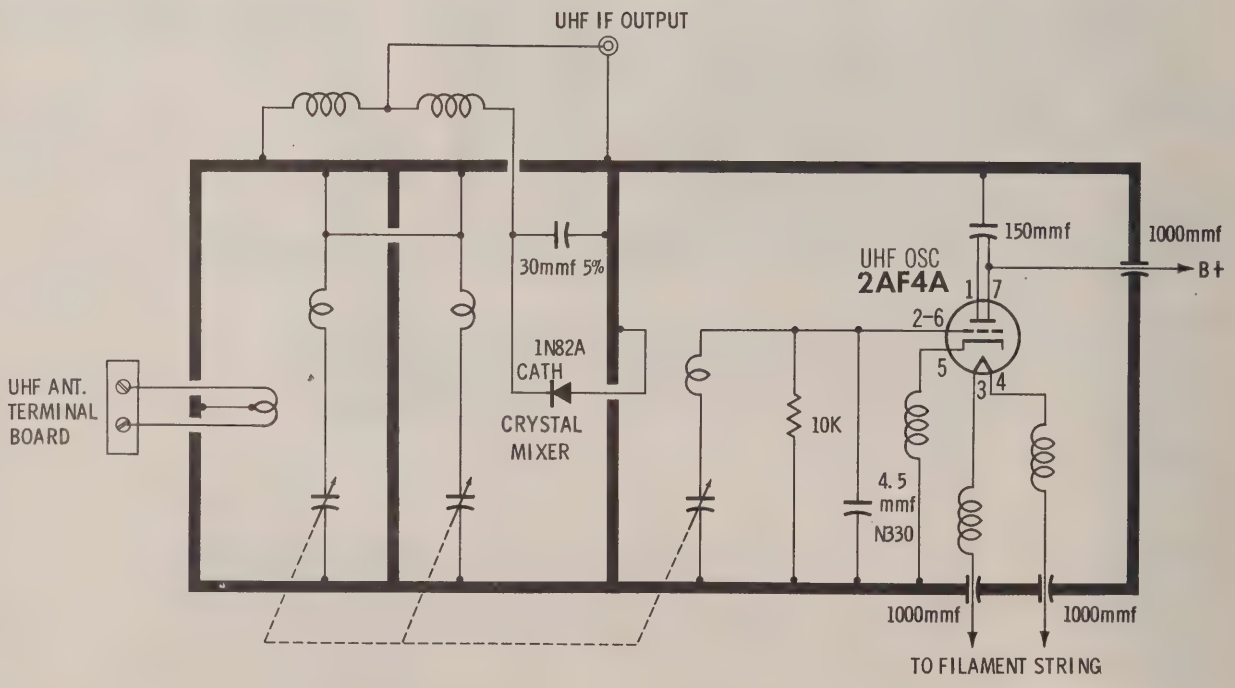
VHF TUNER PR-0298



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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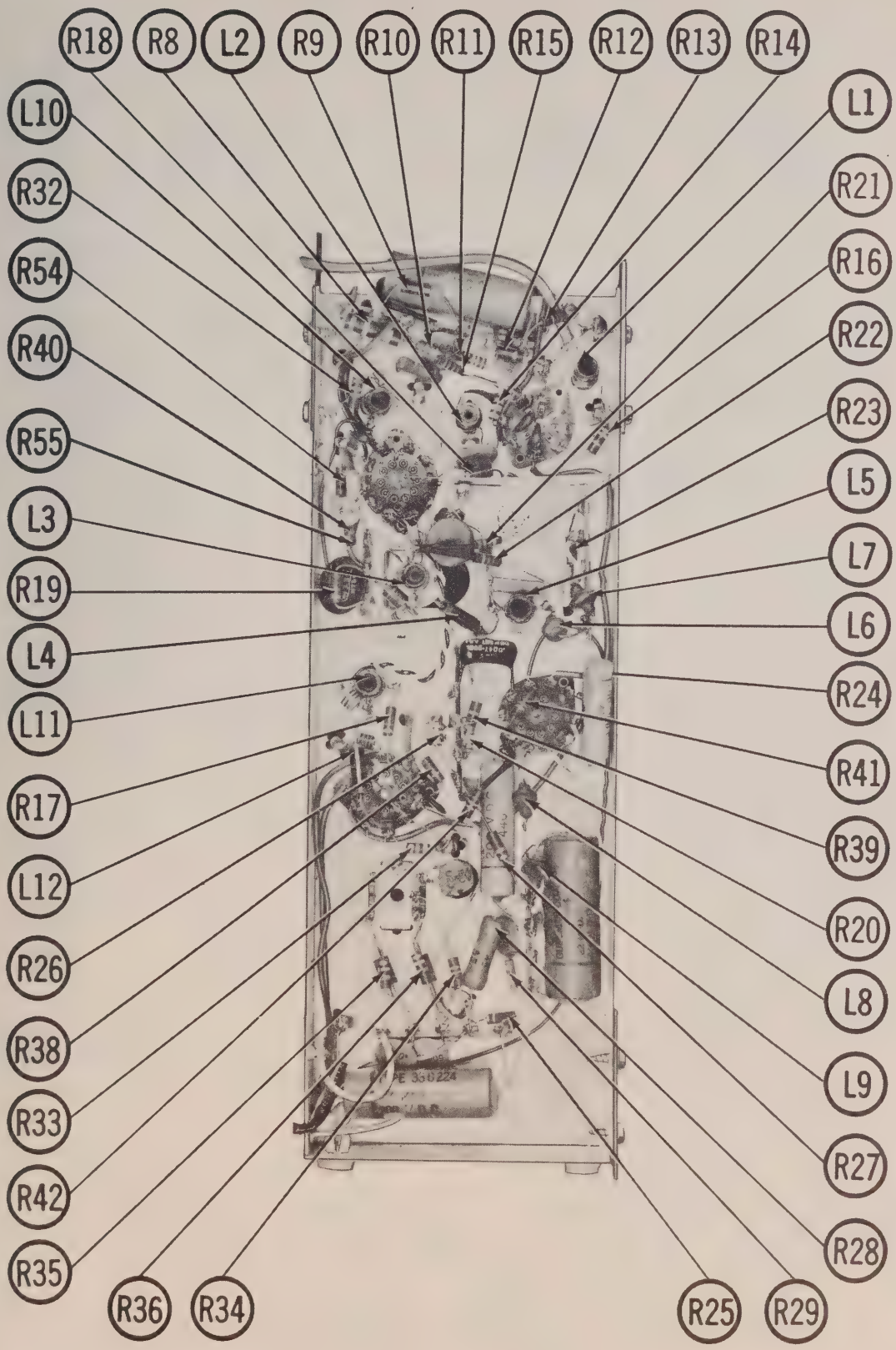
UHF TUNER PR-0302

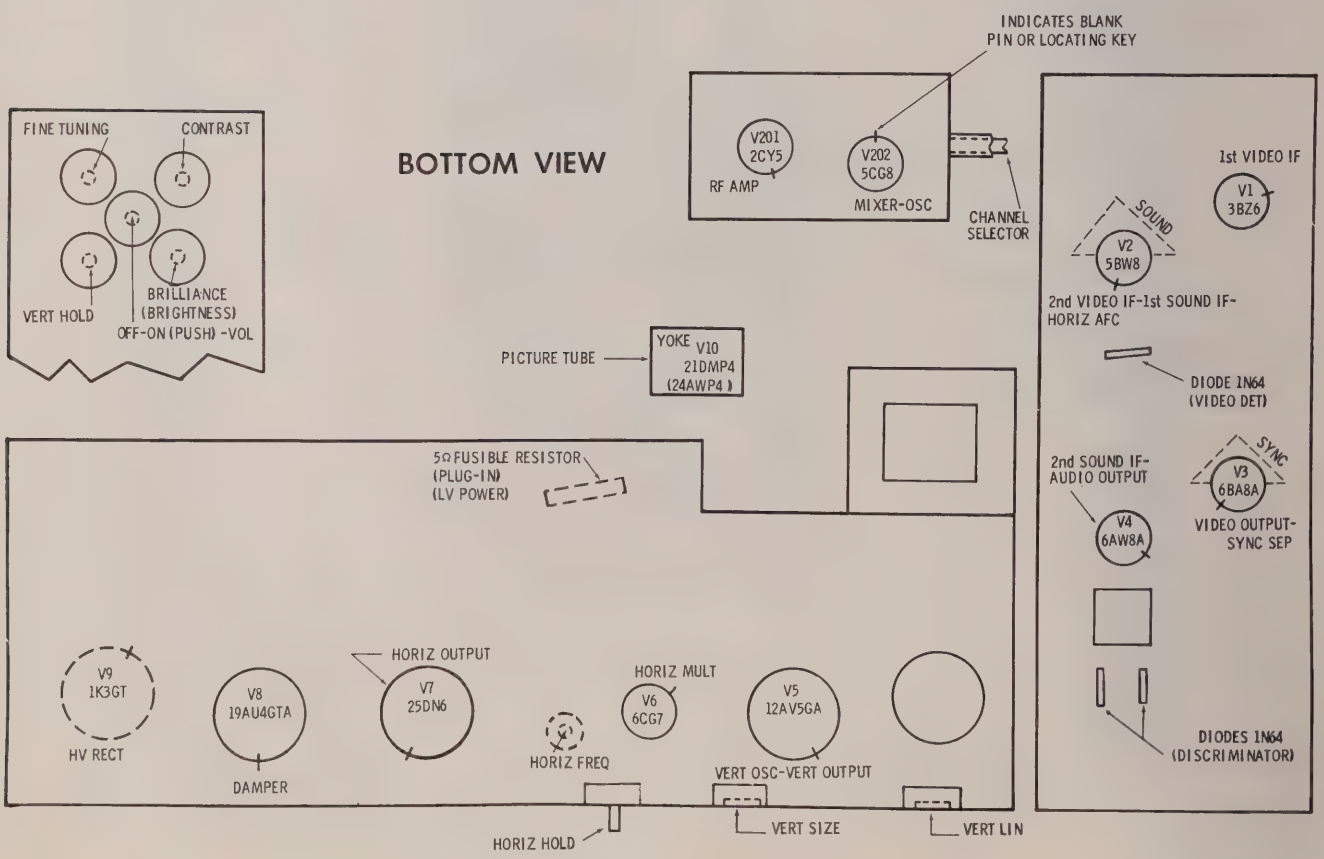


VERTICAL CHASSIS - RESISTOR, INDUCTOR IDENTIFICATION

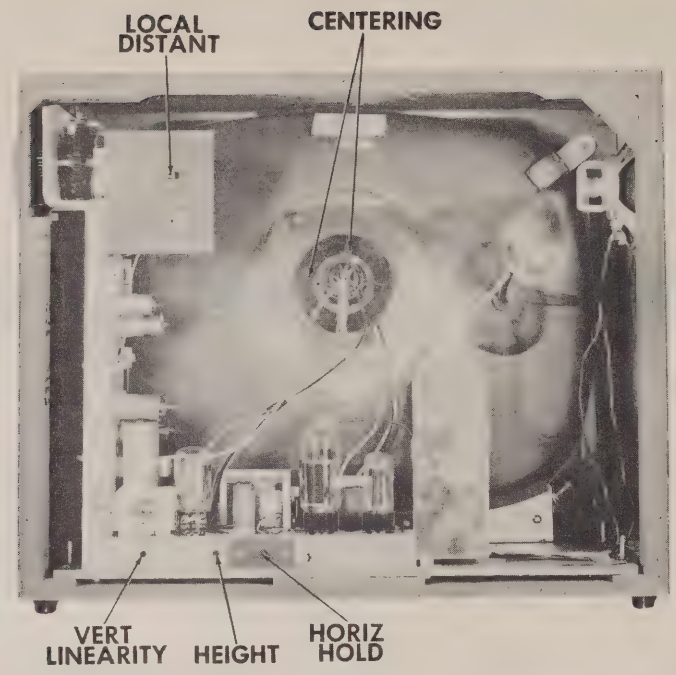
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	1.8meg	47Ω	13Ω	12.5Ω	†1200Ω	†1200Ω	0Ω		
V2	5BW8	2200Ω	1meg	2meg	1Ω	0Ω	1500Ω	100Ω	†1500Ω	†1500Ω
V3	6BA8A	0Ω	2.1meg	†24K	13Ω	14.5Ω	• 120Ω	2.2meg	†10K	‡3300Ω
V4	6AW8A	0Ω	47K	†10K	14.5Ω	16Ω	0Ω	27K	†135Ω	†285Ω
V5	12AV5GA	• 1.5meg	4.5Ω	0Ω	TP	†380Ω	NC	2.5Ω	•†40K	
V6	6CG7	†10K	3meg	1200Ω	16Ω	17.5Ω	†47K	•120K	1200Ω	0Ω
V7	25DN6	NC	20Ω	0Ω	NC	200K	NC	17.5Ω	†1200Ω	TOP CAP ‡10Ω
V8	19AU4GTA	NC	NC	¶700K	NC	†7.5Ω	NC	20Ω	22Ω	
V9	1K3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡410Ω
V10	21DMP4	1Ω	10K	‡180K	†0Ω	NC	‡180K	•190K	2.5Ω	
V201	2CY5	1.3meg	0Ω	12.5Ω	12Ω	†470Ω	†10K	0Ω		
V202	5CG8	15K	†470Ω	0Ω	12Ω	11Ω	†2700Ω	†10K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 170V SOURCE.
‡ MEASURED FROM PIN 3 OF V8.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

Turn the set on and tune in a TV station, preferably with a test pattern. Allow the receiver a few minutes warm-up time.

Adjust controls for a normal picture.

Connect a clip lead across the Horizontal Frequency coil (L16).

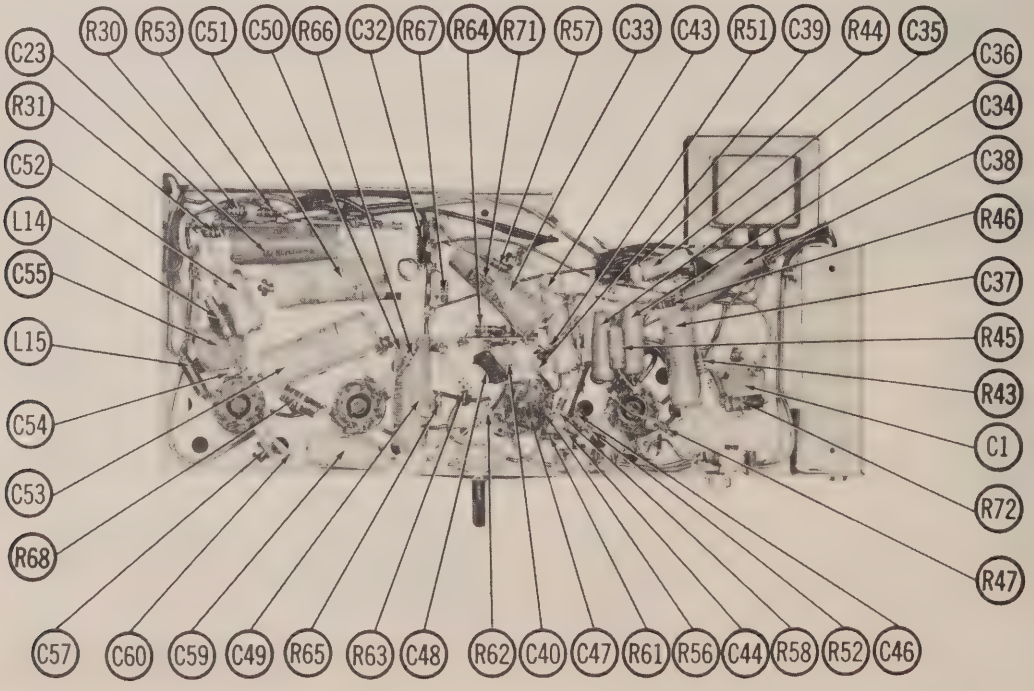
Connect a clip lead from point Ⓔ to chassis.

Adjust the Horizontal Hold control (R7) until a single picture is attained.

Remove the short from L16. Adjust the Horizontal Frequency slug (B1) with the slug entering the coil from the chassis side until a single picture is attained, then turn B1 1/4 turn counterclockwise for final setting of the slug.

Remove the clip lead from point Ⓔ and picture should snap into sync.

Turn the Horizontal Hold control fully clockwise, then turn slowly counterclockwise until the picture falls into sync. With this setting of the Horizontal Hold control, the picture should remain in sync regardless of the signal level.



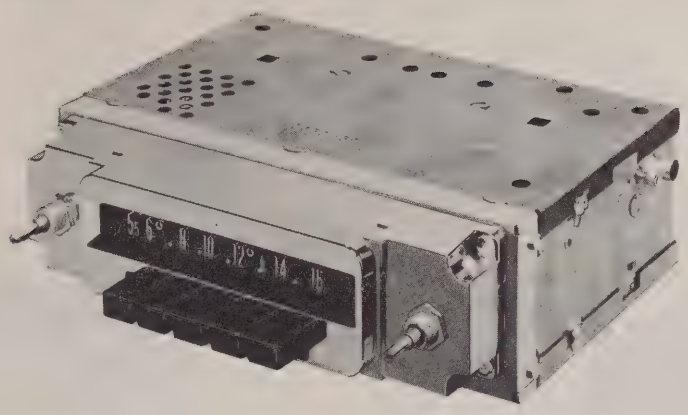
HORIZONTAL CHASSIS BOTTOM VIEW

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

AMERICAN MOTORS MODEL 8990576 (94MA)

AMERICAN MOTORS MODEL 8990576 (94MA)



TRADE NAME	American Motors Model 8990576 (94MA) For 1959 Rambler Automobiles
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 4 Tube Custom Built AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery
RATING	1.15 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 - 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4.....GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7.....GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A8, A9, A10.....See Fig. 2

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	1mfd	High side to antenna receptacle. Low side to chassis.	262.5KC (400~ Mod.)	High frequency end of dial	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is unnecessary unless tuner has been repaired or tampered with. If necessary, back tuning cores 1" out of coils. Repeat step 2.						
3.	Fig. 1	Thru dummy to antenna receptacle	1020KC	Pointer 49/64" from high end	Across voice coil	A8, A9, A10	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement is obtained. Step 2 should be the last step. Cement cores.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.						

PUSHBUTTON ADJUSTMENT

1. Pull out pushbutton.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining pushbuttons.

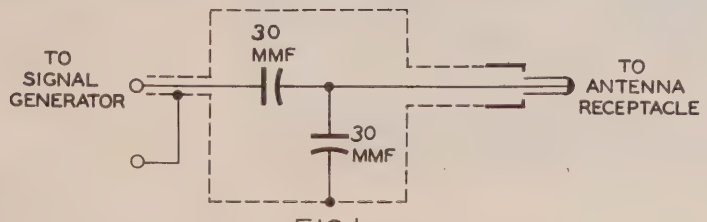


FIG. 1

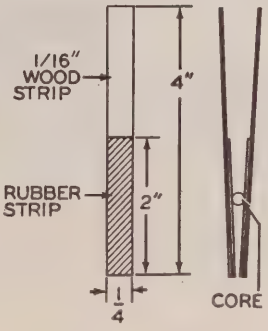


FIG. 2

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J41

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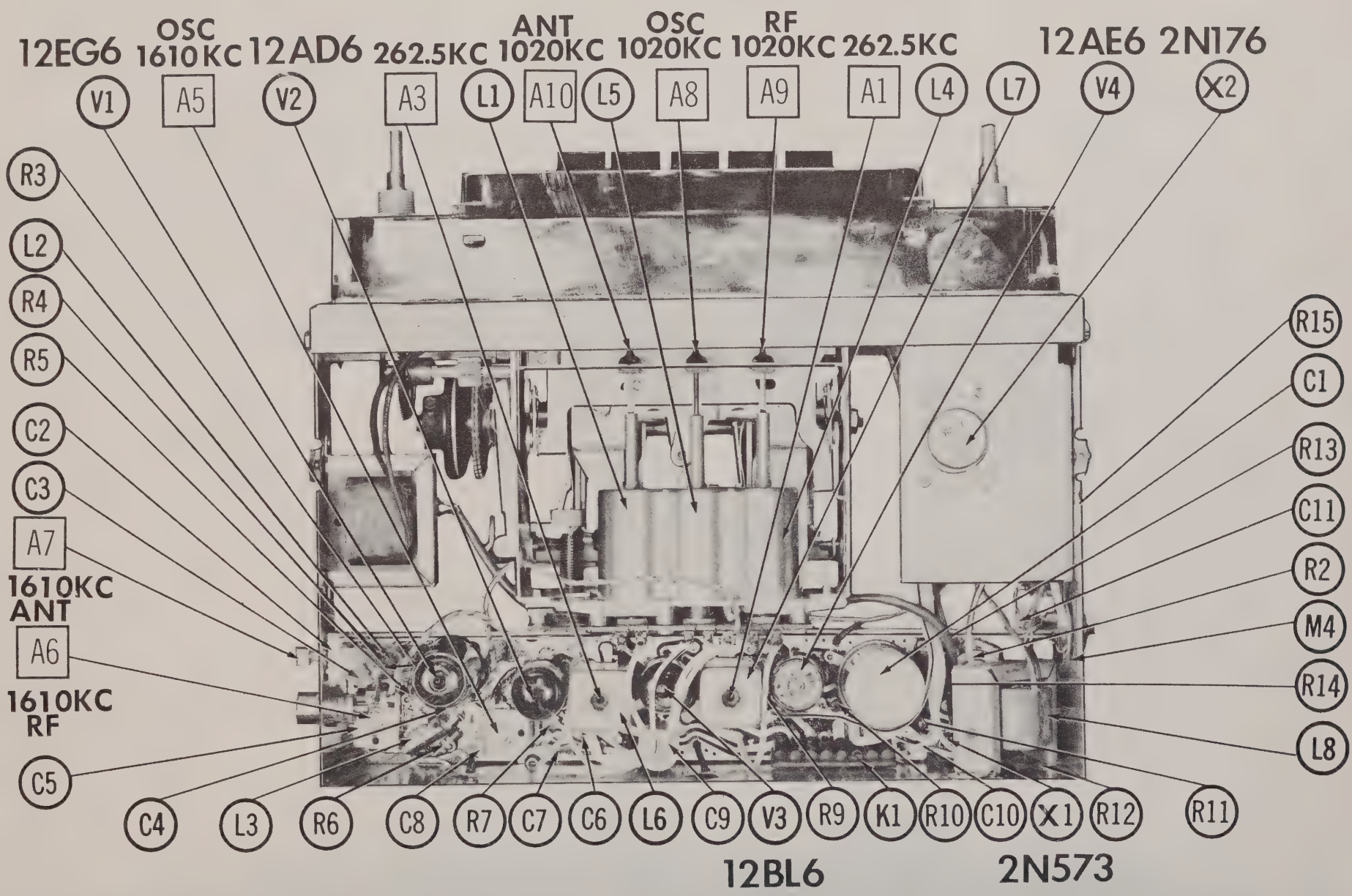
SET 443 FOLDER 4



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12EG6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	
V4	Det. - AVC - AF Amp.	12AE6A	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N573	Driver	2N155	2N176	2N573	2N176	PNP
X2	2N176	Output					PNP Note 1

Note 1. When replacing, apply DC-4 grease (Part #1M490487) or equivalent to insulator.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■400	16	23B561100	AFH2-02-75		PWP201.13		PCLS-2173 *	
B	▲200	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	25-180			20B534809						
C3	.1	200		8K124891	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C4	3.3			21R115951	NPO-SI 3.3	TCZ-3R3	CTA6V33C	CNO-533	5TCCB-V33	
C5	50-260			20K561324						
C6	47		N750	21K561564	N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47	
C7	100		N750 5%	21K561978	N750-DI 100	DTN-100		CN7-310	5TCU-T1S 5% *	
C8	130-210			20B561323						
C9	.1	100		8K124831	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C10	2200				BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	①
C11	220			21R410115	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C12	6800			21R125918	BPD-0068	DD-682	BYA10D68	B-268	5HK-D68	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Some versions may use 1000mmf in this application (Part #21K561565).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg	½	18B561728	F1-82	RTV-677C	† QJ989	♦	Tone
B	1meg			R2-60	Not Req.			Volume, Tap ② 500K
C	Switch			KR-1	Not Req.			
R2	15Ω	1(WW)	18K561139					Bias

† "Concentrikit" equivalent; K-5 Kit, base elements and shafts: B13-141, P13-113 (Panel)
(Not available as a factory assembled unit) B19-137X, R1-207 (Rear)
76-1 (Switch)

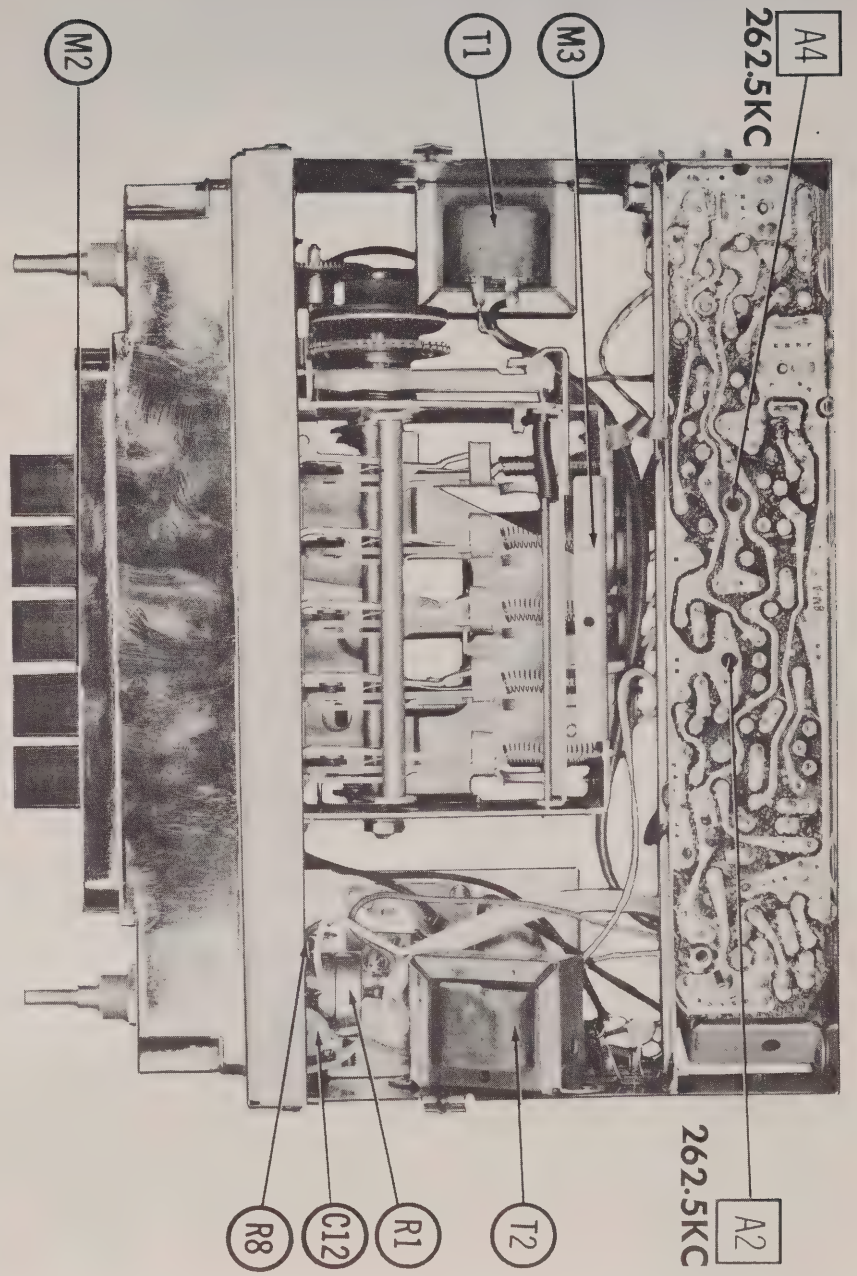
♦ "Sta-Loc" equivalent: FB46L, OS1812, RU16T354, IS2375, US41

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R3	5.6meg		6K124761	
R4	22meg		6R488158	
R5	15K		6R2119	
R6	33K		6K121704	
R7	33K		6K121704	
R8	68K		6K124507	
R9	47K		6K121687	
R10	4700Ω		6K121847	

CHASSIS-BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R11	270Ω		6K121303	
R12	5.6Ω		17K739323	
R13	.68Ω Cold		17A561516	
R14	330Ω		6K127099	Note 1
R15	220Ω		6K125471	

Note 1. Some versions may use 220Ω in this application (Part #6K127099).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Det. Coupling	27mmf, 2000mmf, 10000mmf, 1.5meg, 4.7meg, 5.6meg, 8.2meg	51B561099	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Tuning Coil	24C536308 ①					Includes 100mmf Cap.
L2	Ant. Coil	24K560921					
L3	RF Choke	24K561331 ①					
L4	RF Tuning Coil	24C536308 ①					
L5	Osc. Coil	24B536300					
L6	Input IF	24K561404	16-6756	BC-344	13-PH1		
L7	Output IF	24K561403	16-6757	BC-346	13-PH6		

① Part of M3. (Coil and mounting plate assembly Part #1V561742)

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L8	1.15A	.3Ω	.004 Hy.	25K561731						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	20	1	25K561730						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	24Ω Tap @ 6-8Ω, 3-4Ω Turns Ratio PRI. SEC. .65 : 1	25C561729							

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA MOTOROLA PART No. FUSE	MOTOROLA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	1AG	5A 32V	65R122345	9K562175	301005. (1AG 5A 32V)	155004	SFE4	HAF

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R533821	#1891
M3	Tuner	77E561692	AT-259, Complete
M4	Spark Plate	48K539953	Selenium (Use #43A539954 Bushing, #5K124848 Eyelet, #4A542137 Cup Washer for mounting)
	Printed Board	84K561587	Less Components (Includes Letter following Part #)

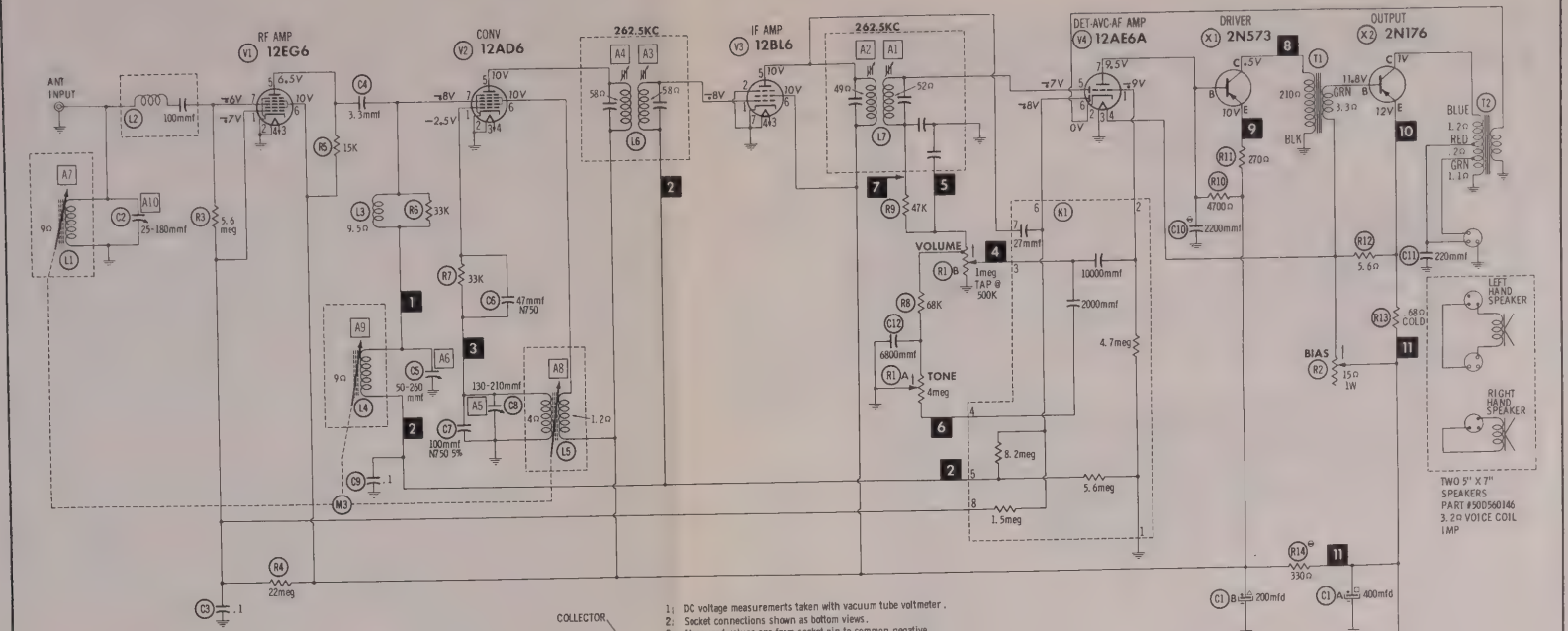
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1V560741	Tuning, Volume-On-Off
Knob	36B560158	Tone, Dummy
Pushbutton	38B561652	
Cover	15C561658	Top
Cover	15K561661	Bottom
Pointer	1K560038	
Dial Scale	34B560043	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661



A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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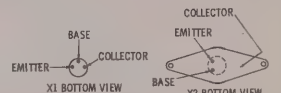
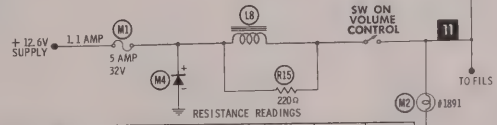


1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12EG6	10meg	0Ω	1.9Ω	0Ω	†15K	†330Ω	16meg
V2	12AD6	33K	0Ω	0Ω	1.9Ω	†380Ω	†330Ω	5.6meg
V3	12BL6	5.6meg	0Ω	1.9Ω	0Ω	†370Ω	†330Ω	0Ω
V4	12AE6A	4.7meg	.1Ω	0Ω	1.9Ω	1meg	9meg	†5000Ω

TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

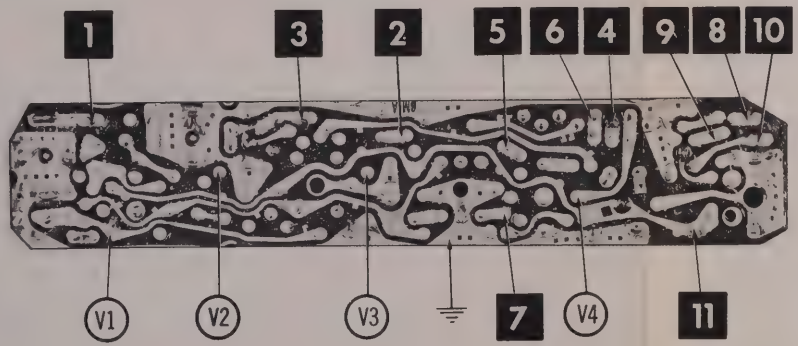
† MEASURED FROM POSITIVE TERMINAL OF C1A.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

AMERICAN MOTORS MODEL 8990576 (94MA)



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ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

EXCEL MODEL 6T-2

EXCEL MODEL 6T-2

EXCEL MODEL 6T-2

TRADE NAME	Excel Model 6T-2
IMPORTER	Excel Corp. Of America, 9 Rockefeller Plaza, New York 20, N. Y.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	9 Volts DC
RATING	6.8MA@9 Volts DC
TUNING RANGE—BROADCAST	530-1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1, A2, A3, A5.....GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A4, A6.....GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd.	High side to antenna stator lug of tuning gang. Low side to B-	455KC (400∿ Mod.)	Point of non-interference.	Acoss voice coil	A1, A2, A3	Adjust for maximum output.
2.		Loop	1650KC	Tuning gang fully open	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	Tune to 600KC signal.	"	A5	"
4.		"	1500KC	Tune to 1500KC signal	"	A6	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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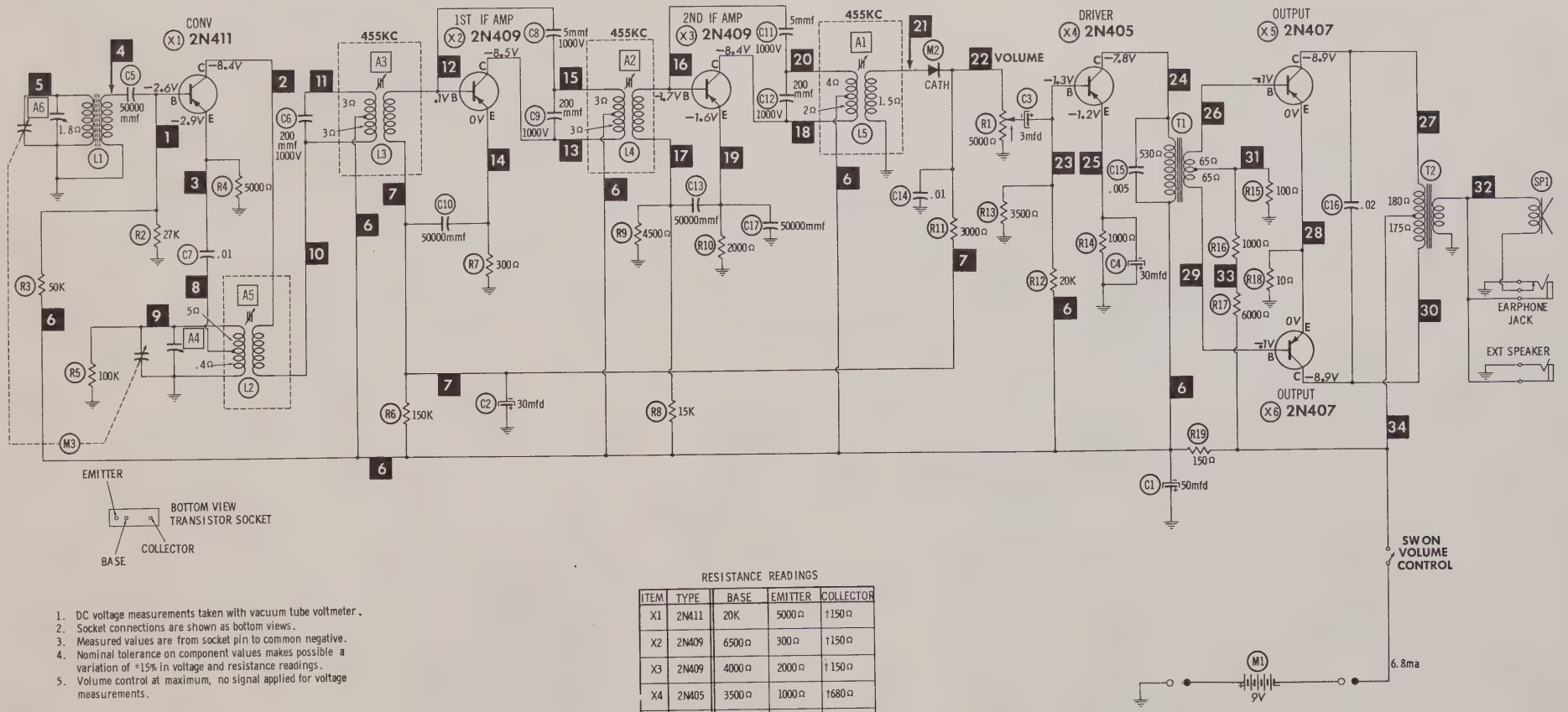
SET 443 FOLDER 5



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N411	20K	5000Ω	†150Ω
X2	2N409	6500Ω	300Ω	†150Ω
X3	2N409	4000Ω	2000Ω	†150Ω
X4	2N405	3500Ω	1000Ω	†680Ω
X5	2N407	165Ω	10Ω	†180Ω
X6	2N407	165Ω	10Ω	†175Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
† MEASURED FROM JUNCTION OF R19 AND ON-OFF SWITCH.

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with CIRCUITRACE®

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EXCEL MODEL 6T-2

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N411	Converter		2N411	2N486	2N411	PNP
X2	2N409	1st IF Amplifier		2N409	2N483	2N409	PNP
X3	2N409	2nd IF Amplifier		2N409	2N482	2N409	PNP
X4	2N405	Driver		2N405	2N362	2N405	PNP
X5	2N407	Output		2N407	2N632	2N407	PNP
X6	2N407	Output		2N407	2N632	2N407	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	EXCEL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	50	10		PWE10050	NL50-10	TT10X50	ML50-15	TE-1119	
C2	30	6		PWE6030	NL25-6	TT6X25	ML30-6	TE-1092	
C3	3	6		PWE6003	NL3-6	TT12X3	ML4-6	TE-1082	
C4	30	6		PWE6030	NL25-6	TT6X25	ML30-6	TE-1092	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			EXCEL PART No.	REPLACEMENT DATA					NOTES
	CAP.	VOLT	TOL		AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	50000				BPD-05	DF-503			5HK-S5	
C6	200	1000			1468LS-HV-0002	DD-201	5P15T2	MCL320		
C7	.01	200			P288N-01	DD-103	BYA10S1	B-110	2WF-S1	
C8	5	1000				DD-050	L10V5	CNO-547	5GA-V5	
C9	200	1000			1468LS-HV-0002	DD-201	5P15T2	MCL320		
C10	50000				BPD-05	DF-503			5HK-S5	
C11	5	1000				DD-050	L10V5	CNO-547	5GA-V5	
C12	200	1000			1468LS-HV-0002	DD-201	5P15T2	MCL320		
C13	50000				BPD-05	DF-503			5HK-S5	
C14	.01	200			P285N-01	DD-103	BYA10S1	B-110	2WF-S1	
C15	.005	200			P285N-005	DD-502	BYA10D5	B-250	2EP-D50	
C16	.02	200			P285N-02	DD-203	BYB6S2	B-120	2WF-S22	
C17	50000				BPD-05	DF-503			5HK-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EXCEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	A02582					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		EXCEL PART No.	NOTES
	OHMS	WATT		
R2	27K			
R3	50K			
R4	5000Ω			
R5	100K			
R6	150K			
R7	300Ω			
R8	15K			
R9	4500Ω			
R10	2000Ω			

ITEM No.	RATING		EXCEL PART No.	NOTES
	OHMS	WATT		
R11	3000Ω			
R12	20K			
R13	3500Ω			
R14	1000Ω			
R15	100Ω			
R16	1000Ω			
R17	6000Ω			
R18	10Ω			
R19	150Ω			

PRINTED BOARD

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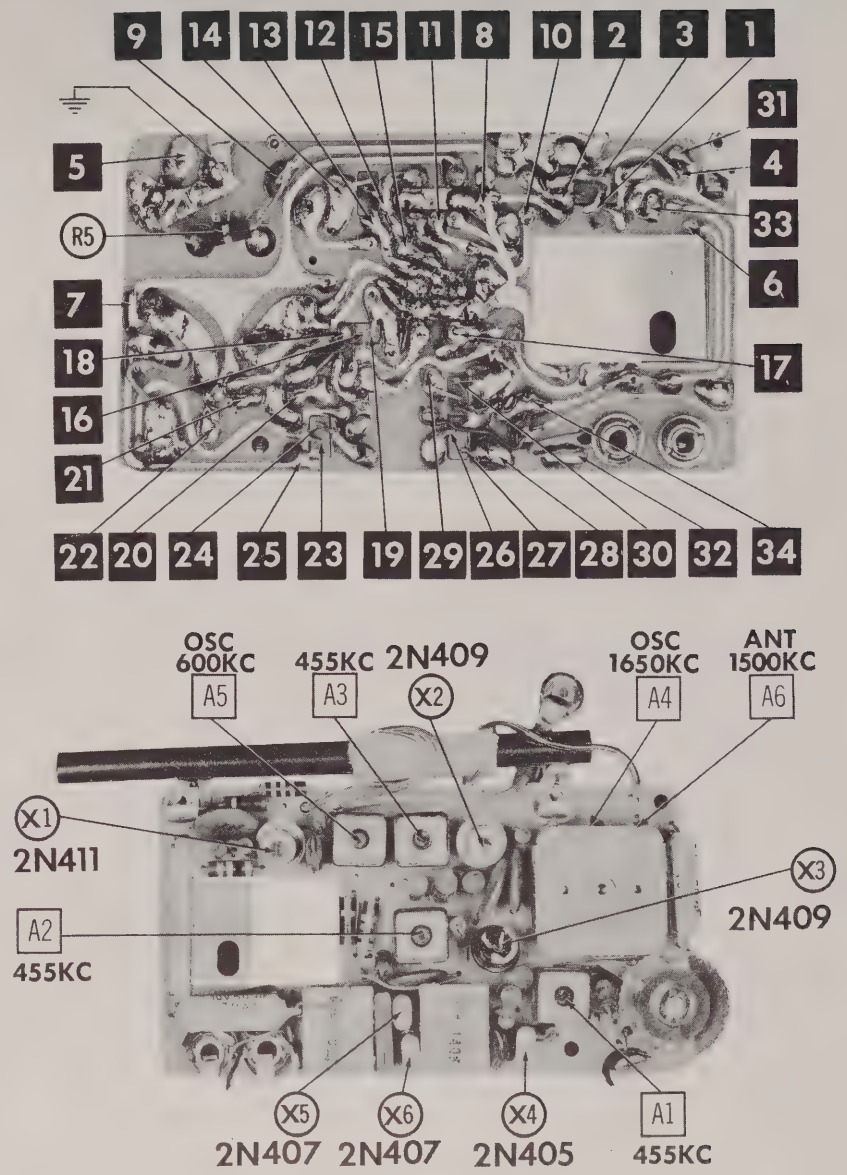


CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		EXCEL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick						
L2	Osc. Coil						
L3	1st IF Trans.						
L4	2nd IF Trans.						
L5	3rd IF Trans.						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EXCEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	4	1	PTA1406	GH109①			TR-13①	T-41X①	① Remove channel frame

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	EXCEL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3000Ω CT	6-8Ω	PTO1006							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EXCEL PART No.	QUAM PART No.	
SP1	2 9/16"	PM	6-8Ω	PSP-2005		

BATTERIES

ITEM No.	VOLTAGE	EXCEL PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	BL-M106		P6		226		M1600	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		EXCEL PART No.	CBS PART No.	SYLVANIA PART No.	
M2	SD46		1N60	1N295	Detector (Pigtail)

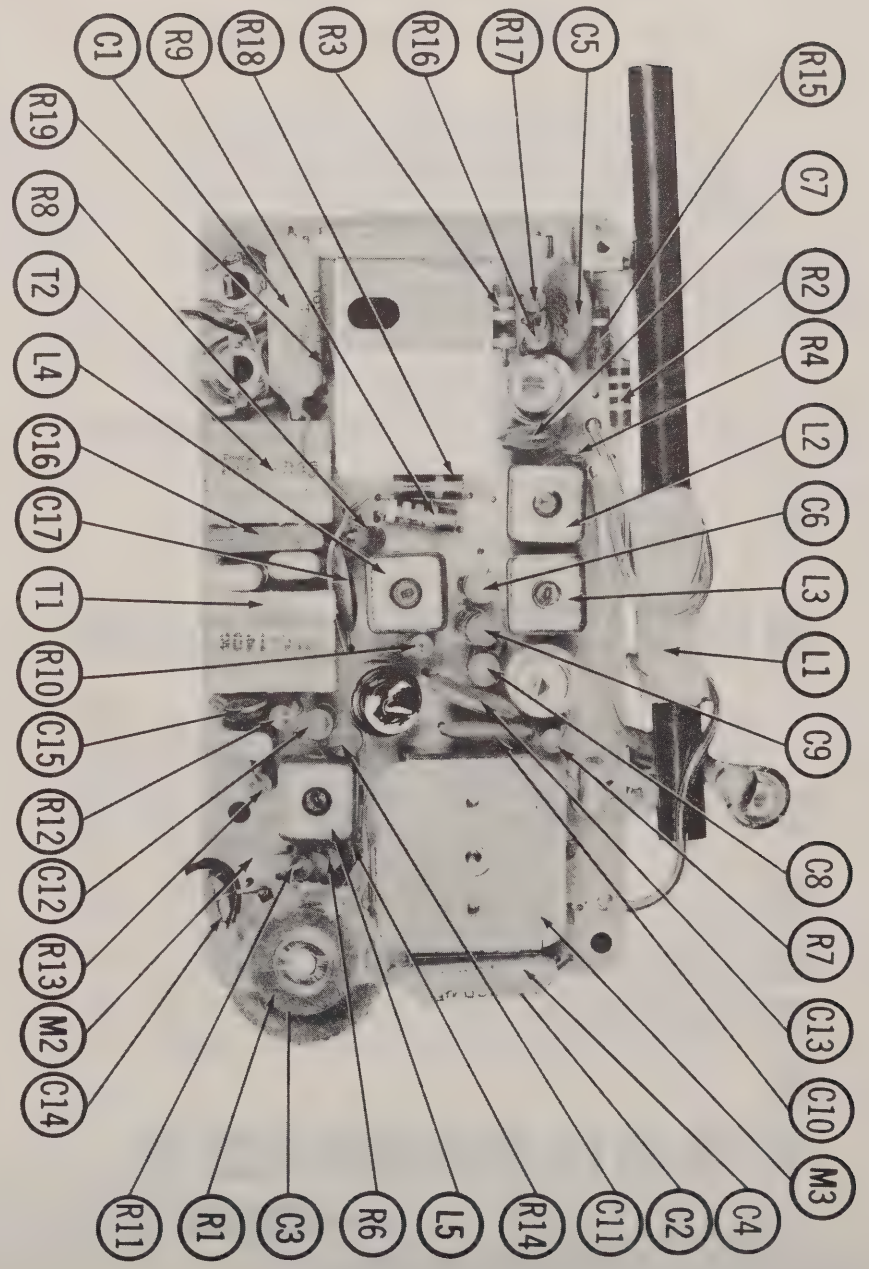
MISCELLANEOUS

ITEM No.	PART NAME	EXCEL PART No.	NOTES
M3	Tuning Cap. Printed Board	GT-2A	2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

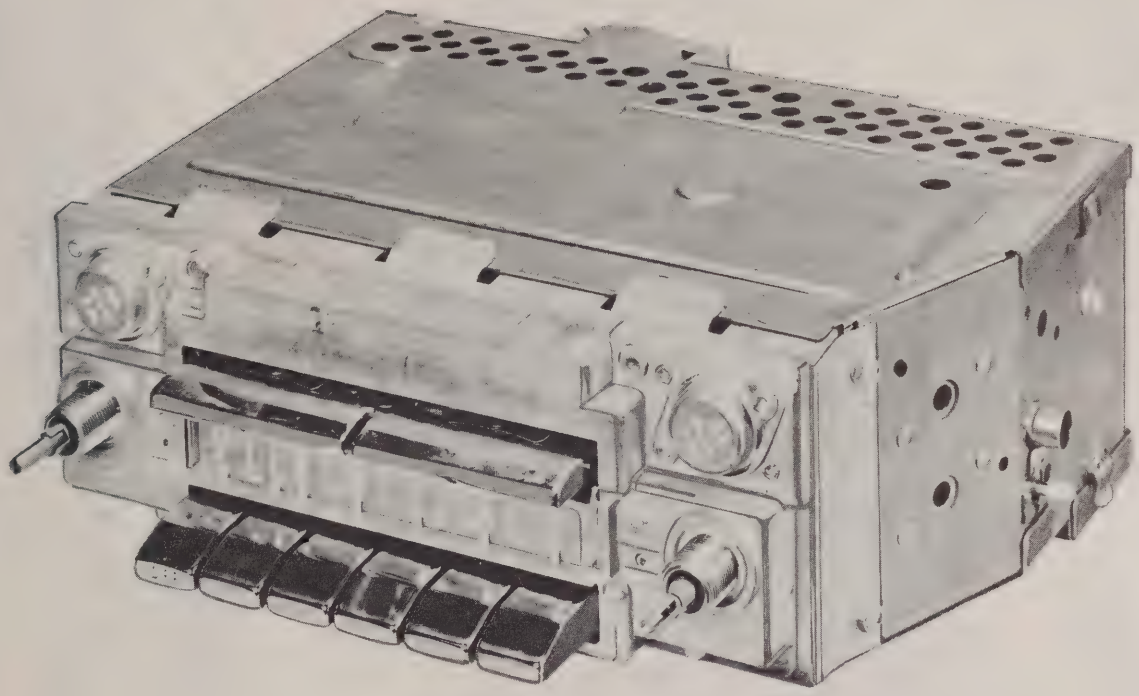
CHASSIS—TOP VIEW



PHOTOFACT* Folder

FORD MODEL 95MF
(B9FA-18806-B)

FORD MODEL 95MF
(B9FA-18806-B)



FORD MODEL 95MF
(B9FA-18806-B)

TRADE NAME	Ford Model 95MF (B9FA-18806-B) For 1959 Ford Automobiles
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 5 Tube Custom Built AM Automobile Receiver with Transistorized Output
POWER SUPPLY	12 Volt Storage Battery
RATING	2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540-1610KC

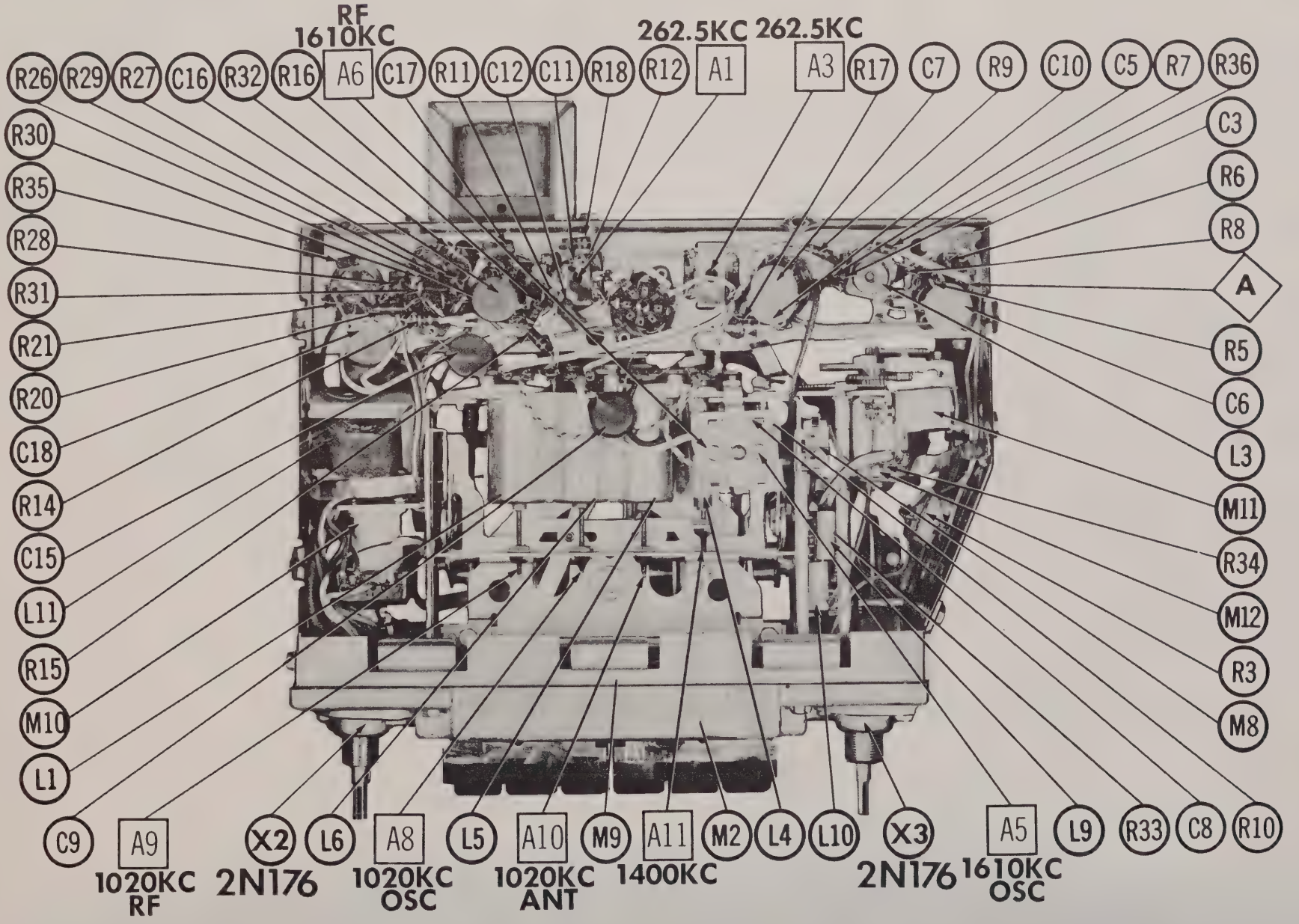
PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

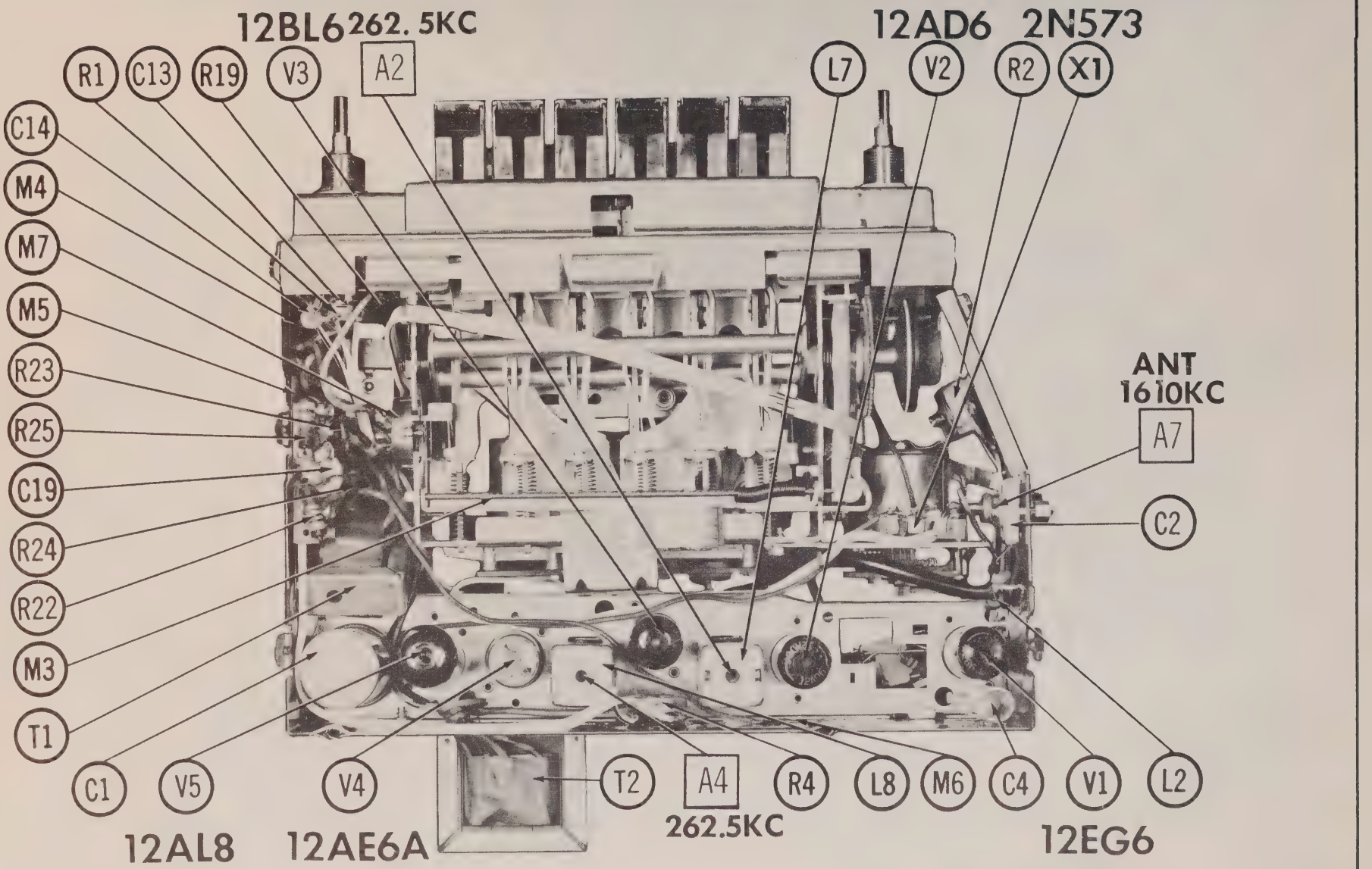
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J38

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

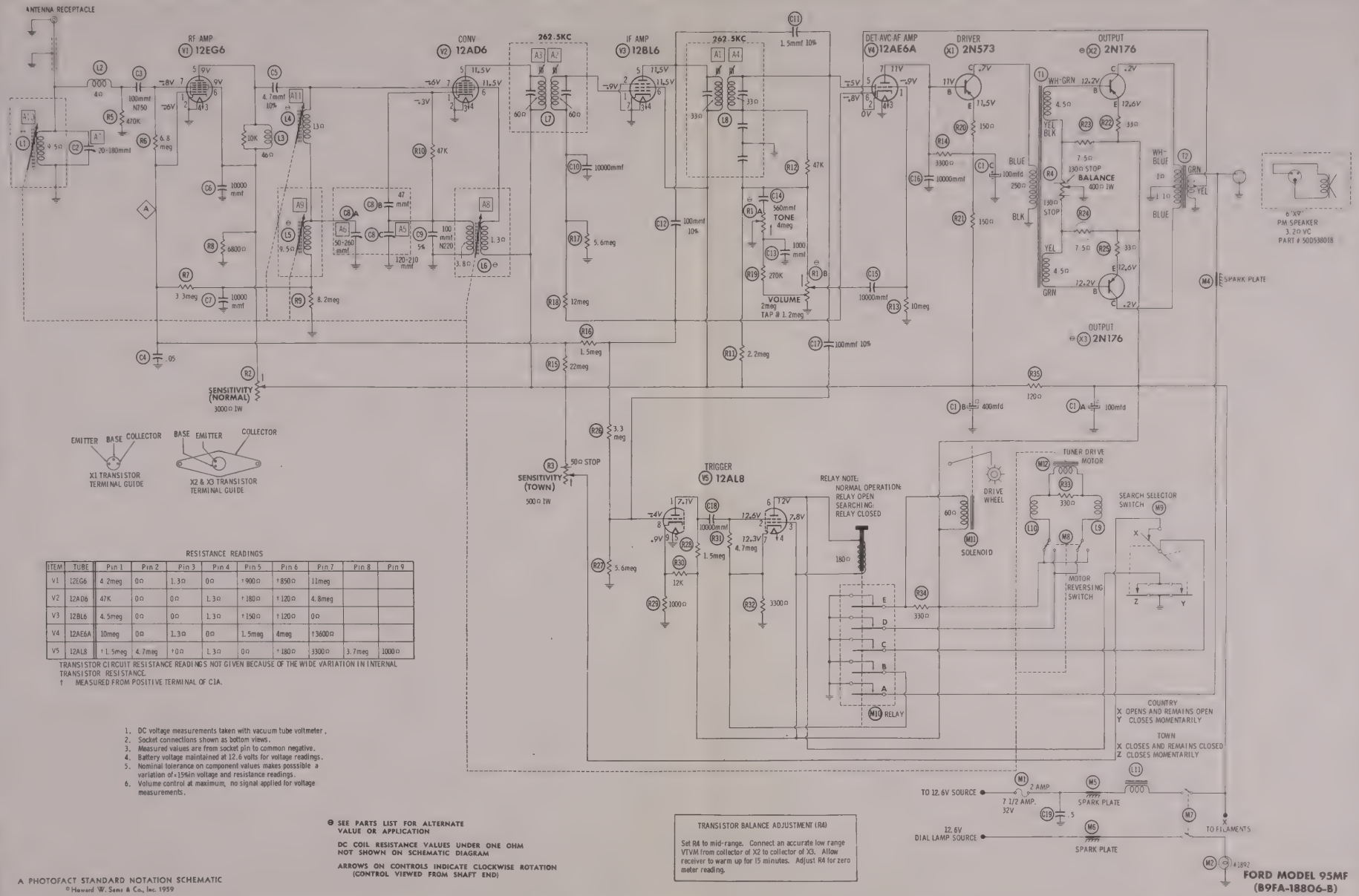


CHASSIS BOTTOM VIEW



CHASSIS-TOP VIEW
(B9FA-18806-B)

FORD MODEL 95MF



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12EG6	4.2meg	0Ω	1.3Ω	0Ω	†900Ω	†850Ω	11meg		
V2	12AD6	47K	0Ω	0Ω	1.3Ω	†180Ω	†120Ω	4.8meg		
V3	12BL6	4.5meg	0Ω	0Ω	1.3Ω	†150Ω	†120Ω	0Ω		
V4	12AE6A	10meg	0Ω	1.3Ω	0Ω	1.5meg	4meg	†3600Ω		
V5	12AL8	†1.5meg	4.7meg	†0Ω	1.3Ω	0Ω	†180Ω	3300Ω	3.7meg	1000Ω

TRANSISTOR CIRCUIT RESISTANCE READINGS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM POSITIVE TERMINAL OF C1A.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

TRANSISTOR BALANCE ADJUSTMENT (R4)

Set R4 to mid-range. Connect an accurate low range VTVM from collector of X2 to collector of X3. Allow receiver to warm up for 15 minutes. Adjust R4 for zero meter reading.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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FORD MODEL 95MF (B9FA-18806-B)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Suggested Alignment Tools:
A1, A4... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A2, A3...GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7.GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A8, A9, A10 .....See Fig. 2

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Before adjusting IF (A1, A2, A3, A4) back cores out of coils, then adjust for FIRST peak or dip as specified.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400∿ Mod)	High Freq. end of dial	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection. Repeat steps 1 and 2 until no further improvement is noted.
3.	Fig.1	Thru dummy to antenna receptacle.	1610KC	"	"	A5, A6, A7	Adjust for maximum deflection.
	Steps 4 and 5 are unnecessary unless tuner has been repaired or tampered with. If necessary, back cores (A8, A9, A10) 1 3/8" out of coils. Repeat step 3.						
4.	Fig. 1	Thru dummy to antenna receptacle.	1020KC	49/64" from High Freq. end stop	DC probe to point Ⓐ. Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
5.	"	"	1610KC	High Freq. end of dial	DC probe to point Ⓐ. Common to chassis.	A5, A6, A7	Adjust for maximum deflection. Repeat steps 4 and 5 until no further improvement is noted. Cement cores in place.
6.	"	"	1925KC	1400KC	"	A11	Adjust for MINIMUM deflection.
7.	"	"	1000KC @ 5 microvolts	Tune to 1000KC signal	Output Meter Across voice coil	R2	Adjust for 1.79 volts with volume control at maximum.
8.	"	"	1000KC @ 100 microvolts	"	"	R3	Turn set off. Press and release "Town" search button. Short contact "C" of relay (M10) to chassis. Turn set on. Adjust R3 for 1.79 volts, volume control at maximum. Remove short.
9.	With radio installed in car and antenna fully extended, tune in a weak station near 1200KC and adjust A7 for maximum output.						

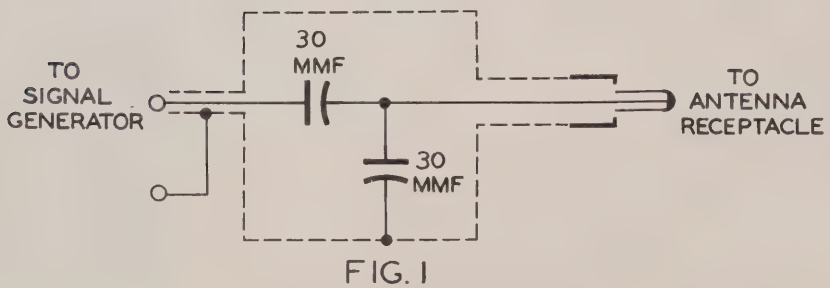


FIG. 1

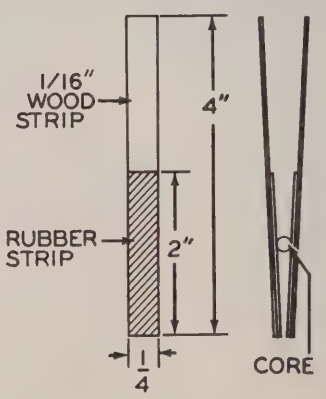


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12EG6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	

ITEM No.	USE	TYPE	NOTES
V4	Det.-AVC-AF Amp.	12AE6A	
V5	Trigger	12AL8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N573	Driver			2N573		PNP
X2	2N176	Output	2N155	2N176		2N176	PNP, Note 1
X3	2N176	Output	2N155	2N176		2N176	PNP, Note 1

Note 1. When replacing, apply DC-4 grease (Part #11M490487) or equivalent to each side of insulator.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲100	16	23B542329	AFH3-00-90		WP300.5		TVLS-3025*	
B	■400	16							
C	100	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20-180			20K539683						
C3	100		N750	21R400537	N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C4	.05	200		8R121005	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C5	4.7		10%	21R115954	NPO-SI 4.7	TCZ-4R7	CTA6V47C	CNO-547	5TCCB-V47S 10%*	
C6	10000			21R482726	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C7	10000			21R482726	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C8A	50-260									
B	47			20K562331						
C	120-210									
C9	100		N220 5%	21R124032						
C10	10000			21R482726	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C11	1.5		10%	21R115959	NPO-SI 1.5	TCZ-1R5	CTA6V15C	CNO-515	5TCCB-V15S10%*	
C12	100		10%	21R115894	NPO-SI 100	TCZ-100	CTA6T1C	CNO-310	5TCC-T1S 10% *	
C13	1000			21R410127	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C14	560			21R120936	DI-560	DD-561	LI0T56	B-356	5GA-T56	
C15	10000			21R482726	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C16	10000			21R121946	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C17	100		10%	21R115894	NPO-SI 100	TCZ-100	CTA6T1C	CNO-310	5TCC-T1	
C18	10000			21R482726	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C19	.5	100		8K122076	P288N-5		CUB2P5	GEM-205	2TM-P5	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg	½	18B561599	F1-82	RTV-678C		■ UE3819	Tone, Note 1
B	2meg	½		R2-75			PFL3K	Volume, Tap ⓐ 1.2meg
R2	3000Ω	1(WW)	18K561281					Sensitivity (Normal)
R3	500Ω	1(WW)	18K542417					Sensitivity (Town), Stop ⓐ 50Ω
R4	400Ω	1(WW)	18B541877					Balance, Stop ⓐ130Ω from each end

Note 1. Some versions may use Part #18B561600.

■ "STA-LOC" Equivalent: FB46L, OS1500, RU26T16, IS2000. (Not available as a factory assembled unit.)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R5	470K		6K119406	
R6	6.8meg		6K122321	
R7	3.3meg		6K121278	
R8	6800Ω		6R490839	
R9	8.2meg		6R5585	
R10	47K		6K121687	
R11	2.2meg		6R3927	
R12	47K		6K121687	
R13	10meg		6K119408	
R14	3300Ω		6K121725	
R15	22meg		6R488158	
R16	1.5meg		6R6460	
R17	5.6meg		6K124761	
R18	12meg		6R400334	
R19	270K		6K121303	
R20	150Ω		6K119403	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R21	150Ω		6K119403	
R22	.33Ω		17K542316	
R23	7.5Ω		6K542314	
R24	7.5Ω		6K542314	
R25	.33Ω		17K542316	
R26	3.3meg		6K121278	
R27	5.6meg		6K124761	
R28	1.5meg		6R6460	
R29	1000Ω		6K121301	
R30	12K		6K119933	
R31	4.7meg		6K122326	
R32	3300Ω		6R6036	
R33	330Ω		6R6010	
R34	330Ω		6R6010	
R35	120Ω		6K128226	
R36	10K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	24C536308 ①					
L2	Ant. Coil	24A532148	19-6033				
L3	RF Choke	24C561809					Includes 10K
L4	Image Trap Coil	24K542330 ①					
L5	RF Coil	24C536308 ①					
L6	Osc. Coil	24B536300 ①					
L7	Input IF	24K561390	16-6752	BC-350	12-H2	RF-3	
L8	Output IF	24C561406	16-6754	BC-354	12-H6		
L9	RF Choke	24A542379					3.2 Microhenries
L10	RF Choke	24A542379					3.2 Microhenries

① Part of coil and mounting plate assembly (Part #1V541995).

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L11	2A	.3Ω	.005 Hy.	25C561326						

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC. 1	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8.5	: 1 SEC. 2	25C561280						
	8.5	: 1							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	30Ω CT	3-4Ω Tap @1Ω	25C561405							

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	7AG	7½A 32V	65R122346	9K560762	30707.5 (7½A 32V)	155009	SFE7½	HDH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R538410	#1892
M3	Tuner	77E561182	(ST-251) Complete
M4	Spark Plate	64A530176	
M5	Spark Plate	64A530176	
M6	Spark Plate	64A530176	
M7	Switch	40B538927	Power-On-Off (DPST, Snap Type)
M8	Switch	40B535396	Motor Reversing (DPDT, Leaf Type)
M9	Switch	1V542282	Search Selector (Includes sensitivity switch and button ass'y.)
M10	Relay	80C541042	SPST, Includes mounting hardware
M11	Solenoid	59A537563	
M12	Motor	59C561887	Tuner Drive, Includes drive gear

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36K561757	Tuning, Volume
Knob	36B539476	Tone, Dummy (Ford Part #FEG18830)
Pushbutton	1B539242	5 Used
Pushbutton	1K539243	Power-Off
Cover	15C561060	Top (Wiring side)
Cover	15C561050	Bottom (Tube Side)
Pointer	1A538977	
Dial Scale	34K561035	
Dial	64B561036	Background

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire .....Use BELDEN No. 8885
Bonding Strap .....Use BELDEN No. 8661

PHOTOFACT* Folder with CIRCUITRACE*

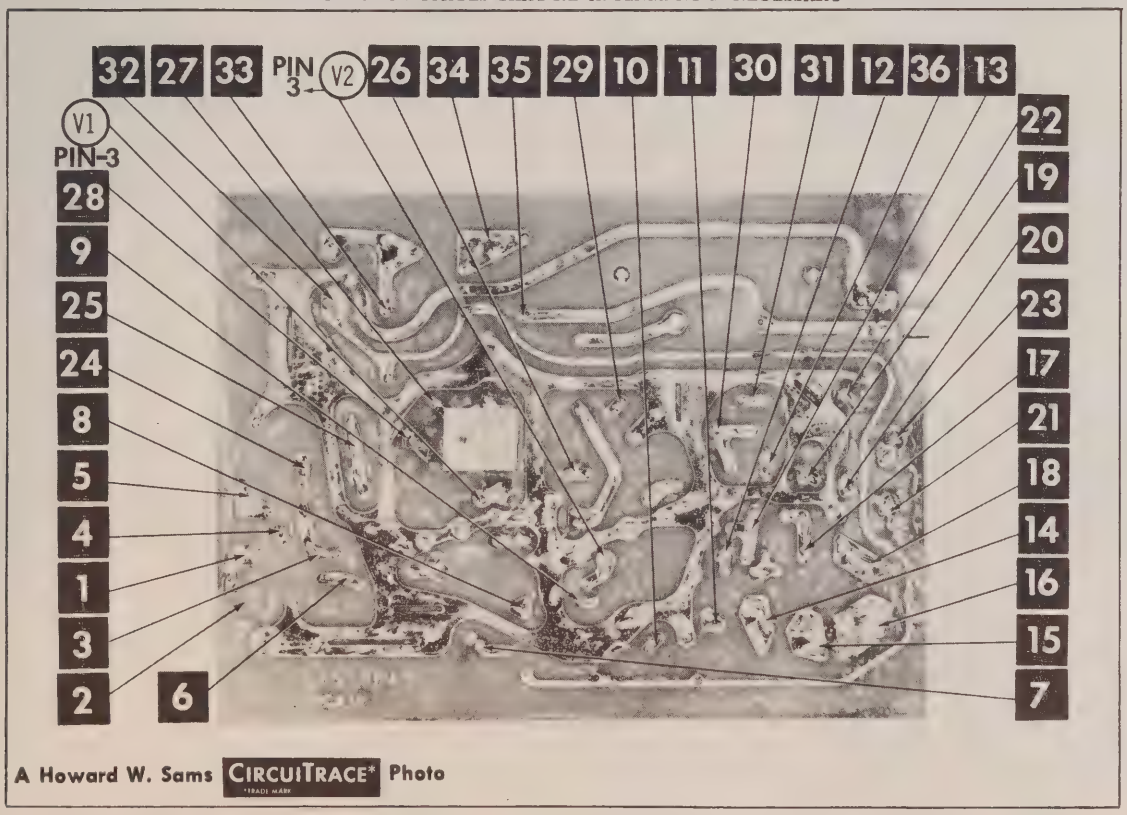
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

JERROLD MODEL HSA-46

JERROLD MODEL HSA-46

TRADE NAME	Jerrold Model HSA-46 (Installation Kit HSK-300 Consists of Amp. HSA-46, Outlets and necessary hardware).
MANUFACTURER	Jerrold Electronics Corp., Distributor Sales Div., 15th & Lehigh, Philadelphia 32, Pa.
TYPE SET	AC Operated 2 Tube TV-FM Home Antenna Distribution Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 20 Watts, .25 Amp. @ 117 Volts AC

THE AMPLIFIER SHOULD BE RETURNED TO THE FACTORY IF OPERATION INDICATES THAT RE-ALIGNMENT IS NECESSARY



A Howard W. Sams CIRCUITRACE* Photo

JERROLD MODEL HSA-46

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1A B	High Freq. Amp. - Low Freq. Amp.	6BK7B	

ITEM No.	USE	TYPE	NOTES
V2A B	High Freq. Amp. Low Freq. Amp.	6BK7B	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	JERROLD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A B	50 50	150 150		PRS150V5050	BBRD5515	WD215	TDLD-9	VLS-2438*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	JERROLD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100	1500			HVD-15-100	DD30-101	HVA16T1	2HV-310	15GAB-T1	
C3	100	1500			HVD-15-100	DD30-101	HVA16T1	2HV-310	15GAB-T1	
C4	2.7		NPO 5%						5TCCB-V27S 5%*	
C5	2.4								5TCCB-V24S*	
C6	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C7	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C8	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C9	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C10	2.2					TCZ-2R2	C10V22C	CNO-522	5TCCB-V22	
C11	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C12	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C13	18		10%		DI 18	D6-180	L10Q18	CNO-418	5TCC-Q18S 10%*	
C14	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C15	18		NPO 2.5%			TCZ-18		CNO-418	5TCC-Q18S 2.5%*	
C16	1.8								5TCCB-V18S*	①
C17	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C18	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C19	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C20	2.2		NPO 2.5%			TCZ-2R2	C10V22C	CNO-522	5TCCB-V22S 2.5%*	
C21	1.8								5TCCB-V18S*	②
C22	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C23	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C24	68		P030 10%							
C25	10				NPO-SI 10	D6-100	L10Q1	CNO-410	5TCC-Q1	
C26	50				NPO-SI 50	D6-500	L10Q5	CNO-450	5TCC-Q5	
C27	7.5		10%						5TCCB-V75S 10%*	
C28	68		P030 10%							
C29	100	1500			HVD-15-100	DD30-101	HVA16T1	2HV-310	15GAB-T1	
C30	100	1500			HVD-15-100	DD30-101	HVA16T1	2HV-310	15GAB-T1	
C31	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C32	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	

① Some versions may use 2.4mmf in this application.
② Some versions may use 2.2mmf in this application.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

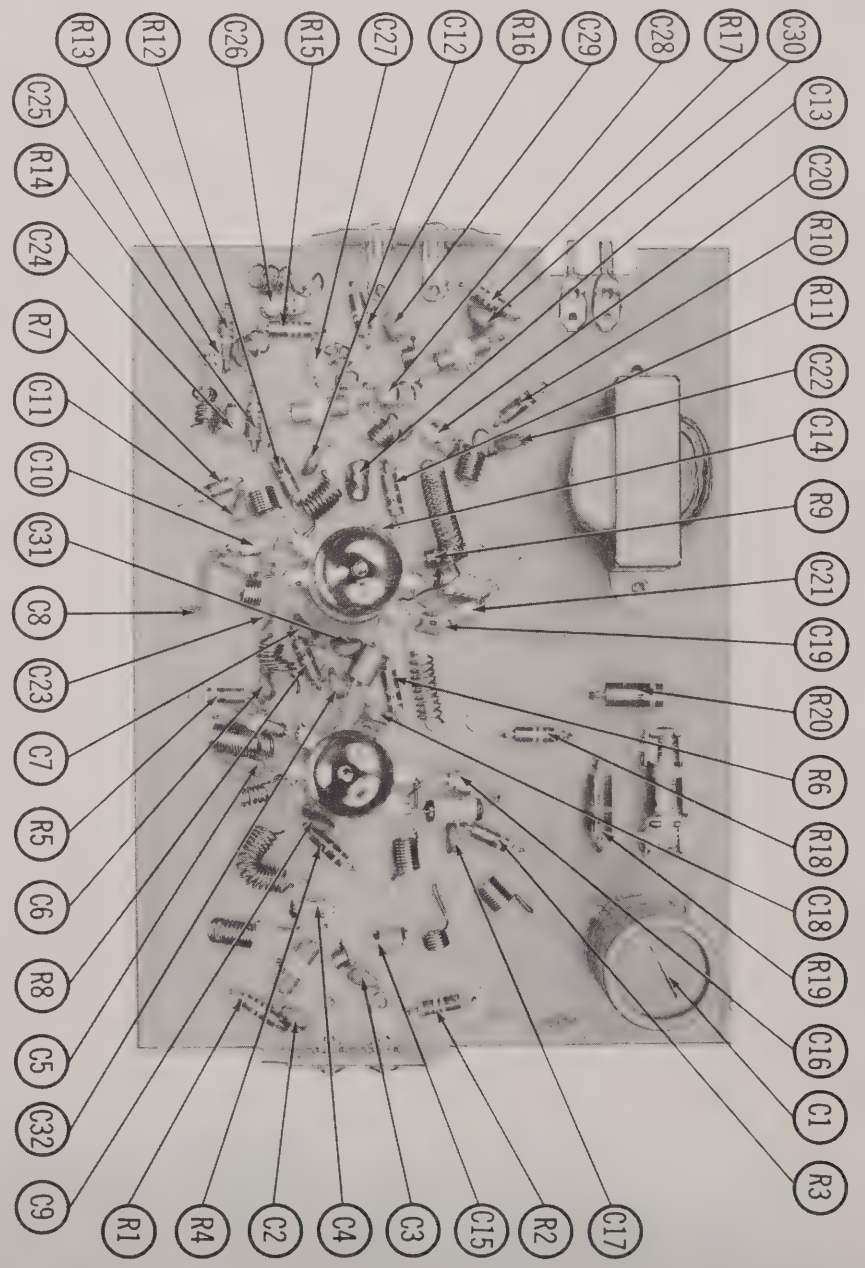
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		JERROLD PART No.	NOTES
	OHMS	WATT		
R1	820K			
R2	820K			
R3	33Ω			
R4	56Ω 5%			
R5	33Ω			
R6	56Ω 5%			
R7	33Ω			
R8	56Ω 5%			
R9	560Ω			
R10	33Ω			

ITEM No.	RATING		JERROLD PART No.	NOTES
	OHMS	WATT		
R11	56Ω 5%			
R12	75Ω 5%			
R13	180Ω			
R14	680Ω			
R15	560Ω			
R16	820K			
R17	820K			
R18	820K			
R19	100Ω	1		
R20	47Ω	1		

CHASSIS—TOP VIEW



PARTS LIST & DESCRIPTION (continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		JERROLD PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	RF Choke						
L2	RF Choke						
L3	RF Choke						
L4	RF Choke						
L5	RF Choke						
L6	RF Choke						
L7	RF Choke						
L8	RF Choke						
L9	RF Choke						
L10	RF Choke						
L11	RF Choke						
L12	RF Choke						
L13	RF Choke						
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L20	RF Choke						
L21	RF Choke						
L22	RF Choke						
L23	RF Choke						
L24	RF Choke						
L25	RF Choke						
L26	RF Choke						
R27	RF Choke						
L28	RF Choke						

TRANSFORMER (FILAMENT)

ITEM No.	RATING		REPLACEMENT DATA						
	PRI.		JERROLD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .25A	Tap ⓐ 6.3V ⓐ .8A	141-120		P-2846			21F08	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				
	CURRENT (Measured)	JERROLD PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.065A		HF154 ①	SD-94 ①	M150 ①	① Silicon Type

MISCELLANEOUS

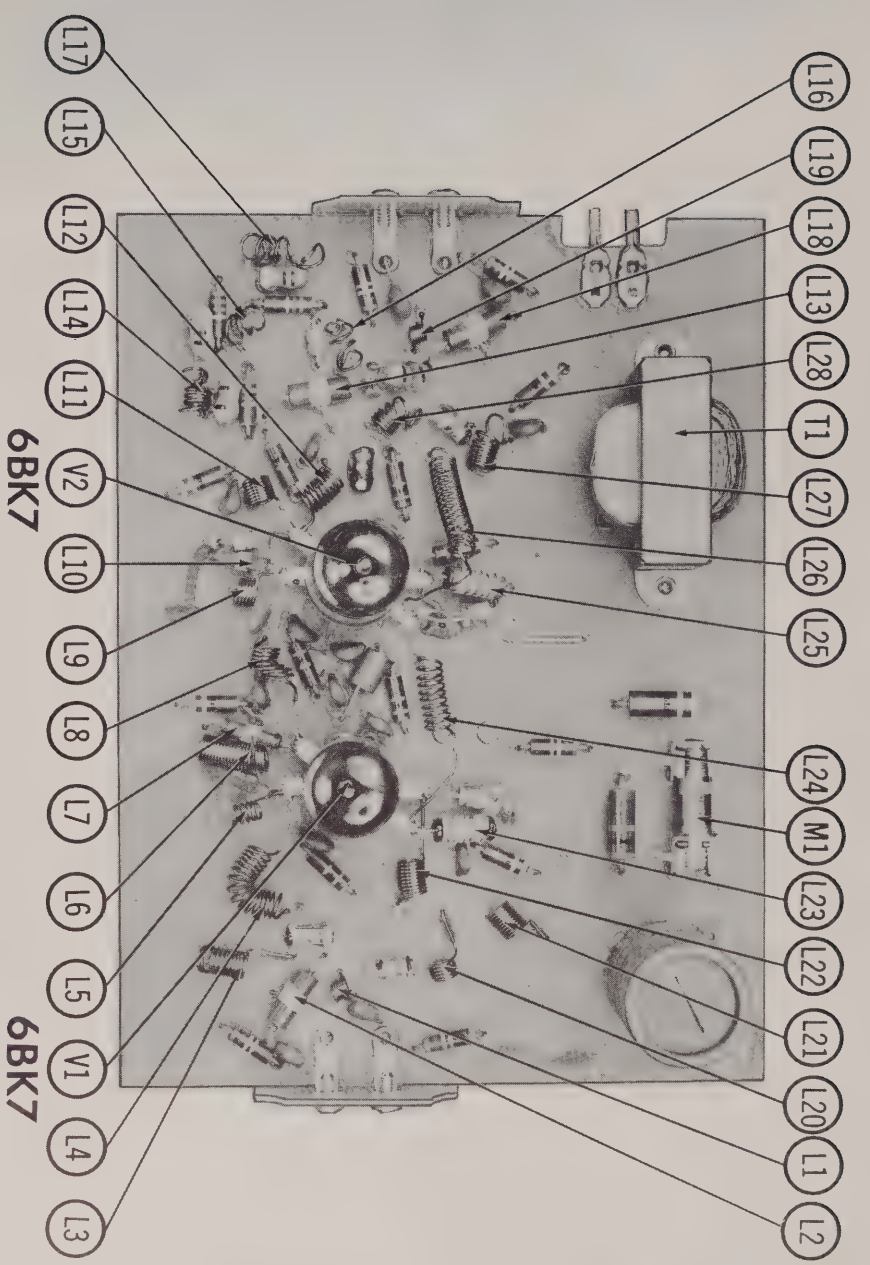
ITEM No.	PART NAME	JERROLD PART No.	NOTES
	Printed Board	275-004	PCA12
	Outlet	Model HS-21	
	Mounting Ring	Model HS-22	
	Cover Plate	Model HS-23	
	Plug	Model HS-24	

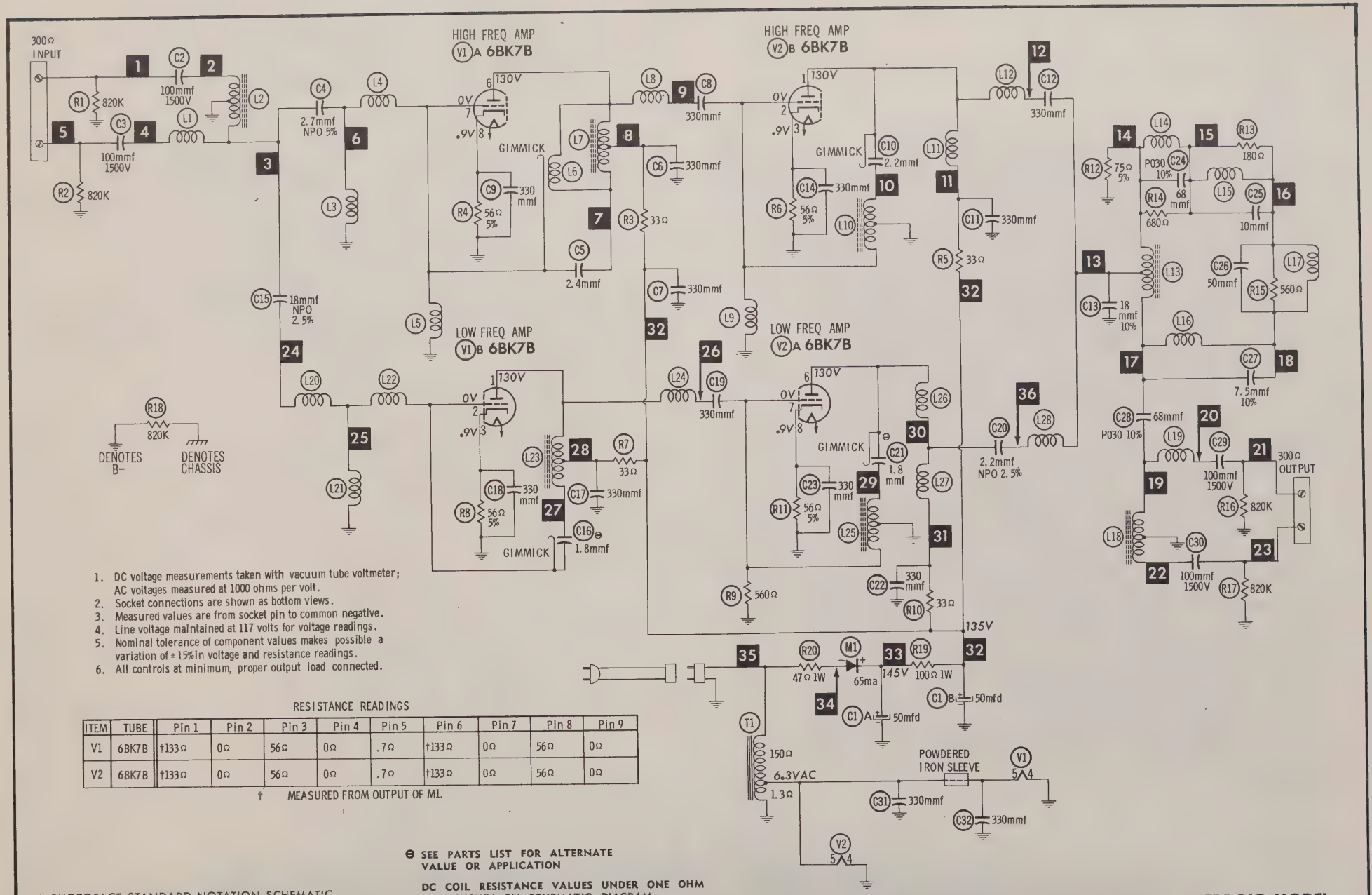
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7B	†133Ω	0Ω	56Ω	0Ω	.7Ω	†133Ω	0Ω	56Ω	0Ω
V2	6BK7B	†133Ω	0Ω	56Ω	0Ω	.7Ω	†133Ω	0Ω	56Ω	0Ω

† MEASURED FROM OUTPUT OF M1.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE*

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JERROLD MODEL HSA-46

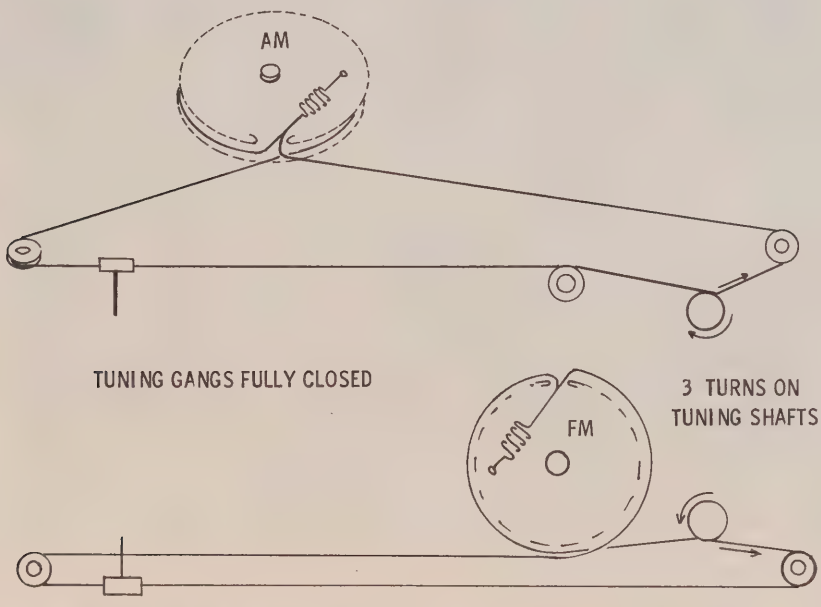
PHOTOFACT* Folder

LAFAYETTE MODEL
LT-99

TRADE NAME	Lafayette Model LT-99		
MANUFACTURER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.		
TYPE SET	AC Operated 8 Tube FM-AM Tuner		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	34 Watts, .365 Amp. @117 Volts AC
TUNING RANGE - BROADCAST	540 - 1650KC	FREQ. MOD.	88 - 108MC

LAFAYETTE MODEL
LT-99

DIAL CORD STRINGING

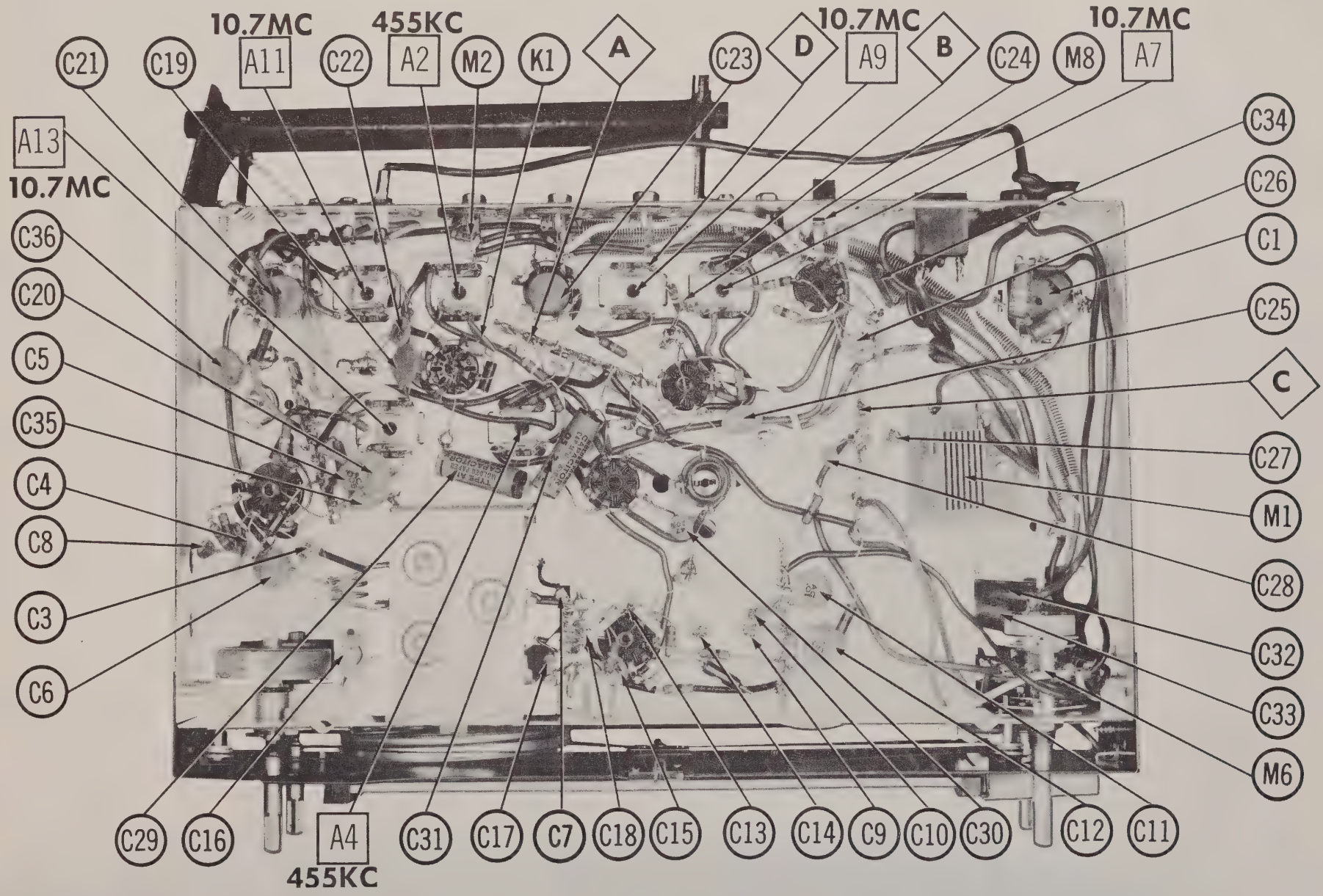


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

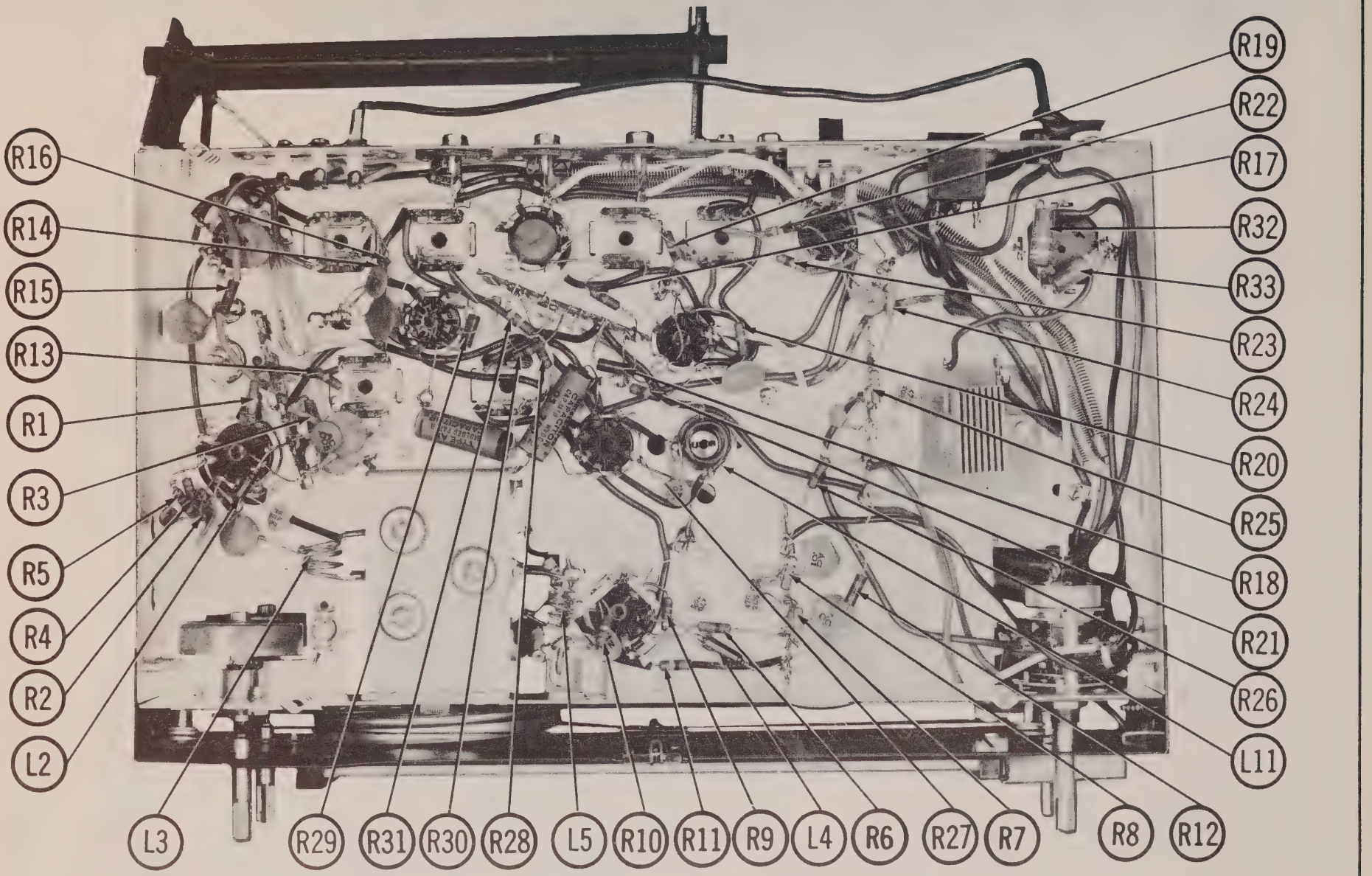
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H954

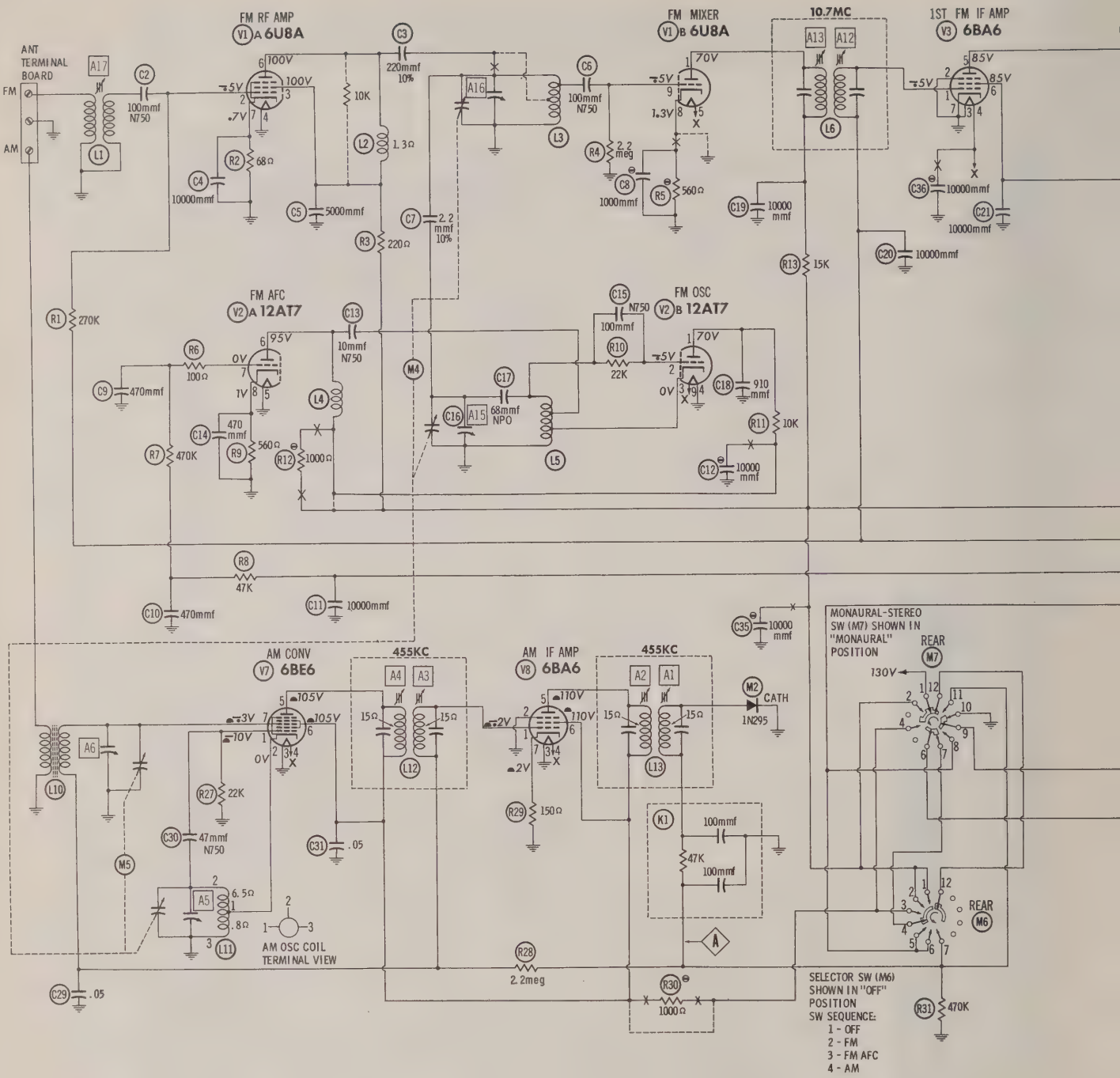
SET 443 FOLDER 8



CHASSIS BOTTOM VIEW - CAPACITOR, MISC & ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENTIFICATION



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. No signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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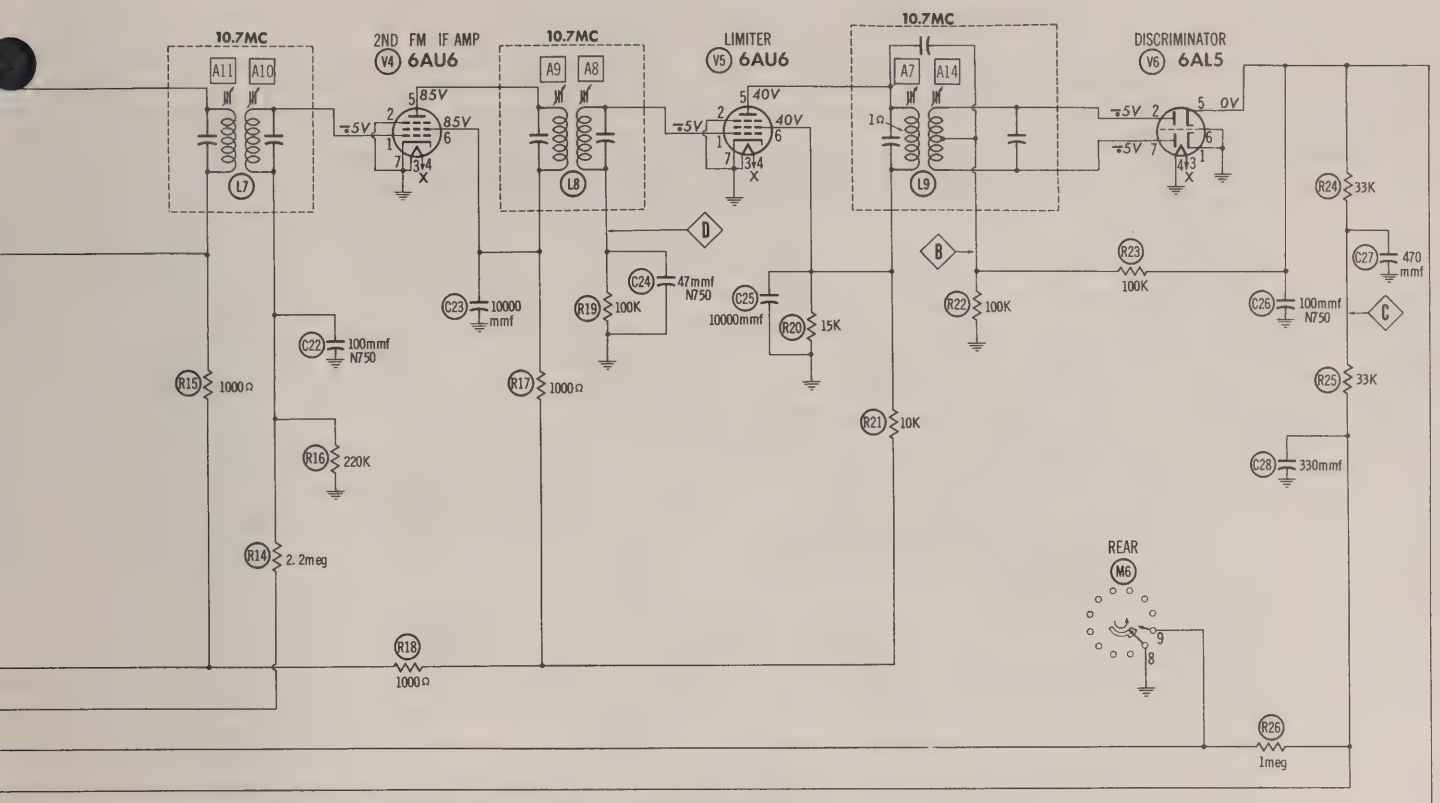
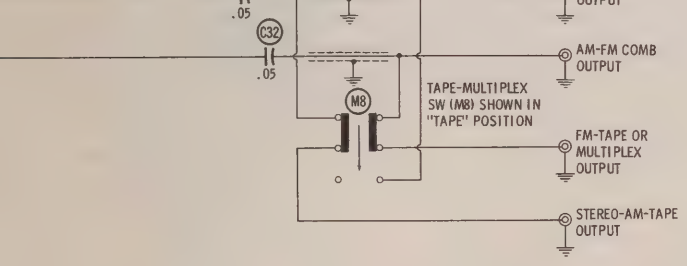
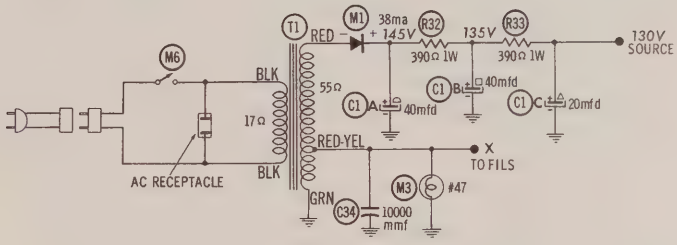


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8A	†16K	2.7meg	†1000Ω	0Ω	.1Ω	†1000Ω	68Ω	560Ω	2.2meg
V2	12AT7	†12K	22K	0Ω	0Ω	0Ω	†1800Ω	▪1.7meg	560Ω	.1Ω
V3	6BA6	2.4meg	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	0Ω		
V4	6AU6	220K	0Ω	0Ω	.1Ω	†2800Ω	†2800Ω	0Ω		
V5	6AU6	100K	0Ω	0Ω	.1Ω	†10K	†10K	0Ω		
V6	6AL5	0Ω	100K	.1Ω	0Ω	160K	0Ω	100K		
V7	6BE6	22K	.8Ω	0Ω	.1Ω	†▲1800Ω	†▲1800Ω	▲2.7meg		
V8	6BA6	▲2.7meg	0Ω	0Ω	.1Ω	†▲1800Ω	†▲1800Ω	150Ω		

† MEASURED FROM OUTPUT OF M1.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "AM" POSITION.
▪ MEASURED IN "FM-AFC" POSITION.

LAFAYETTE MODEL LT-99

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Stereo Switch at Monaural Position.

Suggested Alignment Tools.....A1 thru A4, A7 thru A14.....GENERAL CEMENT #5097, 8727
WALSCO #2515

A5, A6, A16.....GENERAL CEMENT #5000, 5003, 5009, 8290
WALSCO #2515, 2520, 2523, 2525, 2537

A15.....GENERAL CEMENT #5003, 8721, 8722
WALSCO #2512, 2519, 2525

A17.....GENERAL CEMENT #5009, 8271, 8275, 8276, 8721, 8722
WALSCO #2516, 2519

A M ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd.	High side to AM RF Stator lug on tuning gang. Low side to chassis.	455KC (400~ Mod.)	AM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.		Loop	1650KC	"	Tuning gang fully open	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	Tune to 1400KC signal	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR & VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	.01mfd.	High side to FM RF Stator lug of tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe thru 1meg to point Ⓑ. Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 1meg to point Ⓒ. Low side to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01mfd.	High side to FM RF Stator lug of tuning gang. Low side to chassis.	10.7MC (450KC Swp)	FM (No AFC)	Point of non-interference	Vert. amp. thru 1meg to point Ⓑ. Low side to chassis.	A7, A8, A9, A10, A11, A12 A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp thru 27K to point Ⓒ. Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	270Ω Carbon Resistor	Across FM antenna terminals with 270Ω in high side.	108MC (Unmod.)	FM (No AFC)	108MC	DC probe to point Ⓓ. Low side to chassis.	A15	Adjust for maximum deflection.
7.	"	"	106MC	"	Tune to 106MC signal	"	A16	Adjust for maximum deflection while rocking tuning gang.
8.	"	"	90MC	"	Tune to 90MC signal	"	A17	Adjust for maximum deflection.

FIG. 1

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. -FM Mixer	6U8A	
V2	FM Osc. -FM AFC	12AT7	
V3	1st FM IF Amplifier	6BA6	
V4	2nd FM IF Amplifier	6AU6	
V5	FM Limiter	6AU6	
V6	Discriminator	6AL5	
V7	AM Converter	6BE6	
V8	AM IF Amplifier	6BA6	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Lafayette PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	200	E-212-4	AFH3-94	C0150	FP318.74	TMT-19	TVLS-3482.1*	
B	■40	200			BR3025		TD-30-250		
C	▲20	200							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

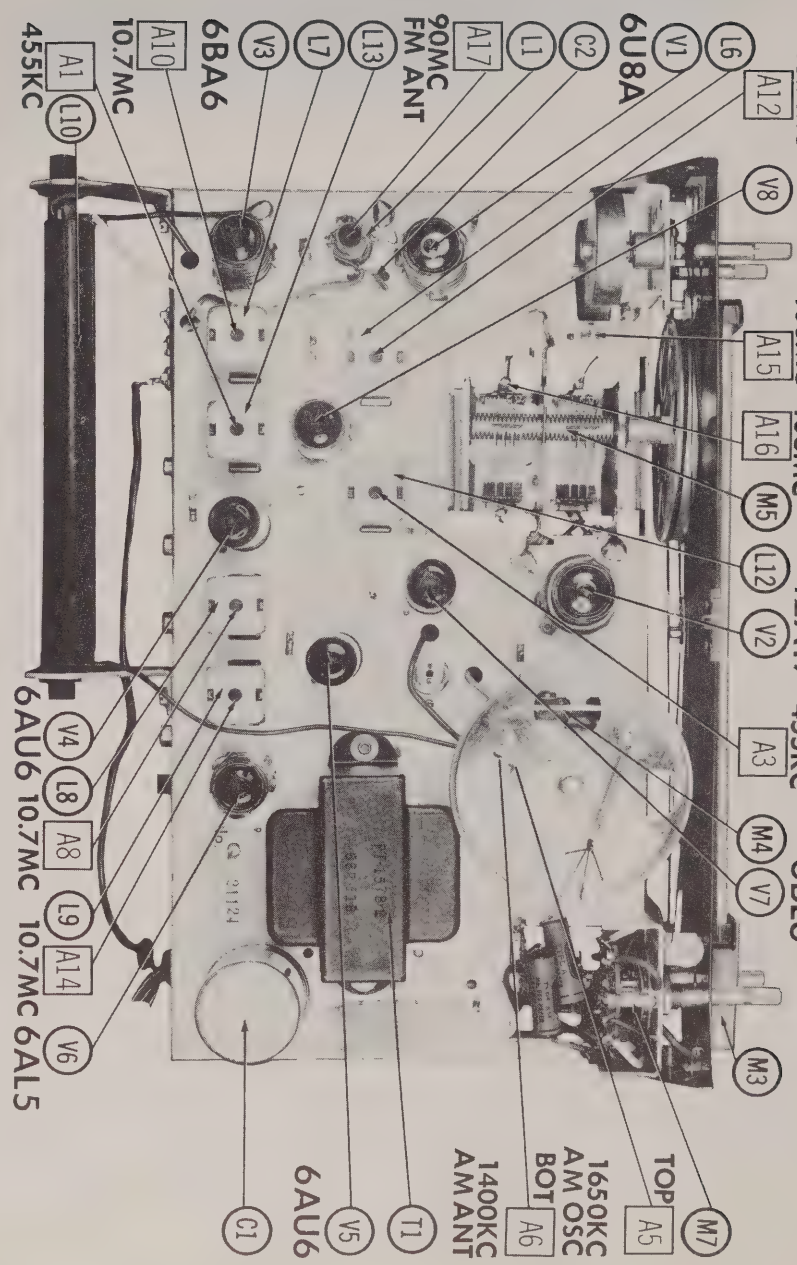
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA Lafayette PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C3	220		10%		NPO-SI 220	MD-221	L10T22	JL-322	5GA-T22S 10%*	
C4	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C5	5000				BPD-005	DD-502	BYA10D5	B-250	5GA-D5	
C6	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C7	2.2		10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CNO-522	5TCCB-V22	
C8	1000				BPD-001	DD-102	BYA10D1M	B-210	5GA-D1	①
C9	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C10	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C11	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C12	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	①
C13	10		N750		N750-DI 10	DTN-10	C10Q1U	CN7-410	5TCU-Q1	
C14	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C15	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C16				TC-223-1						
C17	68		NPO		NPO-SI 68	TCZ-68	C10Q68C	CNO-468	5TCC-Q68	
C18	910								5GA-T910S*	
C19	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C20	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C21	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C22	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C23	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C24	47		N750		N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47	
C25	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C26	100		N750		N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	
C27	470				BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C28	330				BPD-00033	DD-331	L10T33	B-333	5GA-T33	
C29	.05	200			P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C30	47		N750		N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47	
C31	.05	200			P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C32	.05	200			P288N-05		CUB2S5	GEM-415	2TM-S5	
C33	.05	200			P288N-05		CUB2S5	GEM-415	2TM-S5	
C34	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	
C35	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	①②
C36	10000				BPD-01	DD-103	BYA10S1	B-110	5GA-S1	①②

① Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Lafayette PART No.	NOTES
R1	270K			
R2	68Ω			
R3	220Ω			
R4	2.2meg			
R5	560Ω			Note 1
R6	100Ω			
R7	470K			
R8	47K			
R9	560Ω			
R10	22K			
R11	10K			
R12	1000Ω			Note 1
R13	15K			
R14	2.2meg			
R15	1000Ω			
R16	220K			
R17	1000Ω			

ITEM No.	RATING OHMS	RATING WATT	Lafayette PART No.	NOTES
R18	1000Ω			
R19	100K			
R20	15K			
R21	10K			
R22	100K			
R23	100K			
R24	33K			
R25	33K			
R26	1meg			
R27	22K			
R28	2.2meg			
R29	150Ω			
R30	1000Ω			Note 1
R31	470K			
R32	390Ω	1		
R33	390Ω	1		

Note 1. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Lafayette PART No.	REPLACEMENT DATA
K1	AM Diode RF Filter	100mmf, 100mmf, 47K		Aerovox PA-97-1 Centralab PC-50 Cornell-Dubilier 11TM1 Sprague D1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Lafayette PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	1102-3					
L2	RF Choke	1104-4		SW-631			4.7 Microhenries
L3	FM RF Coil	1100-3					
L4	RF Choke	1104-3	19-1002	SW-630	4606		2.7 Microhenries
L5	FM Osc. Coil	0-156-3					
L6	1st FM IF Trans.	1038B-5	16-3487	FM-254	1463		
L7	2nd FM IF Trans.	1038B-5	16-3487	FM-254	1463		
L8	3rd FM IF Trans.	1038B-5	16-3487	FM-254	1463		
L9	Discriminator	1038B-2	17-3494	FM-253	1464		
L10	Loopstick	L-155B-7					
L11	AM Osc. Coil	1101C-5		BC-393			
L12	1st AM IF Trans.	I-110	16-6758	BC-352	12-C1	RF1	
L13	2nd AM IF Trans.	I-110	16-6758	BC-353	12-C2	RF2	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	REPLACEMENT DATA Lafayette PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .365A	120V Tapⓐ.038A 6.3V Tapⓐ2.3A							

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Lafayette PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.038A	R837-2	1235AH	T100 SD-94 ①	100A K200 ①②	① Silicon Type ② Add 10Ω Resistor in series

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA Lafayette PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N295		1N60	1N295	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Lafayette PART No.	NOTES
M3	Lamp		#47
M4	Tuning Cap.	V222B-3	FM, 2 Gang
M5	Tuning Cap.	V217-5	AM, 2 Gang (Ant. 11-241mmf, Osc. 8-108mmf)
M6	Switch	8089-3	Function Selector (4 Position Rotary, Wafer Type With Rotary, Snap Type, On-Off)
M7	Switch	BS-836-2	Stereo-Monaural (Rotary, Wafer Type)
M8	Switch		Tape-Multiplex (DPDT, Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	K-483-2	Tuning, 2 Used
Knob	K-482-1	Function Selector, Stereo-Monaural
Dial Scale	DG-604-3	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

PHILCO MODELS G-820, G-822, G-824, G-826, G-828

PHILCO MODELS G-820, G-822, G-824, G-826, G-828

MODEL G-822

PHILCO MODELS G-820, G-822, G-824, G-826, G-828

TRADE NAME	Philco Models G-820, G-822, G-824, G-826, G-828
MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	AC-DC Operated 5 Tube AM Receiver
POWER SUPPLY	105 - 125 Volts, AC-DC
RATING	29 Watts, .27 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540 - 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.		Loop	1620KC	1620KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1500KC	Tune to 1500KC signal	"	A6	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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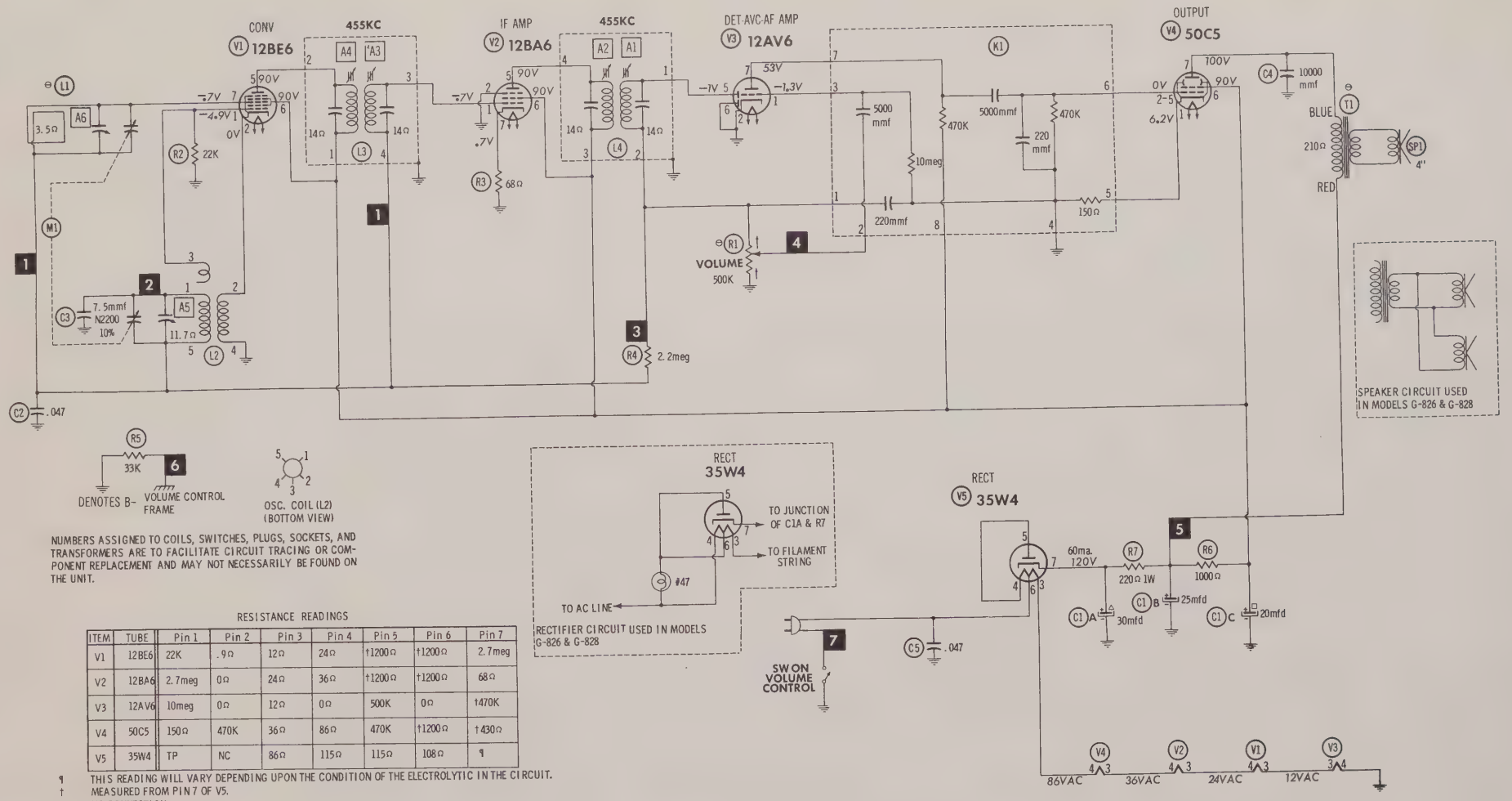
J79

SET 443 FOLDER 9



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	12Ω	24Ω	†1200Ω	†1200Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†1200Ω	†1200Ω	68Ω
V3	12AV6	10meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1200Ω	†430Ω
V5	35W4	TP	NC	86Ω	115Ω	115Ω	108Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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PHILCO MODELS G-820, G-822, G-824, G-826, G-828

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	150	30-2585-11	AFH3-05-50	BBRT32V215		TDLT-2	PCL-3435.1	
B	25	150							
C	■20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200		30-4650-45	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C3	7.5		N2200 10%	30-1224-83						
C4	10000			30-1262	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C5	.047	400		30-4650-45	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	33-5575-17①					Volume & Switch

① Part #33-5575-15 used in Models G-824, G-826, G-828

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R2	22K		66-3228340	
R3	68Ω		66-0688340	
R4	2.2meg		66-5228340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R5	33K		66-3338340	
R6	1000Ω		66-2108340	
R7	220Ω	1	66-1224340	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	Det. -Audio Circuit	220mmf, 220mmf, 5000mmf, 5000mmf, 150Ω, 470K, 470K, 10meg	30-6500-1	

COILS (RF-IF)

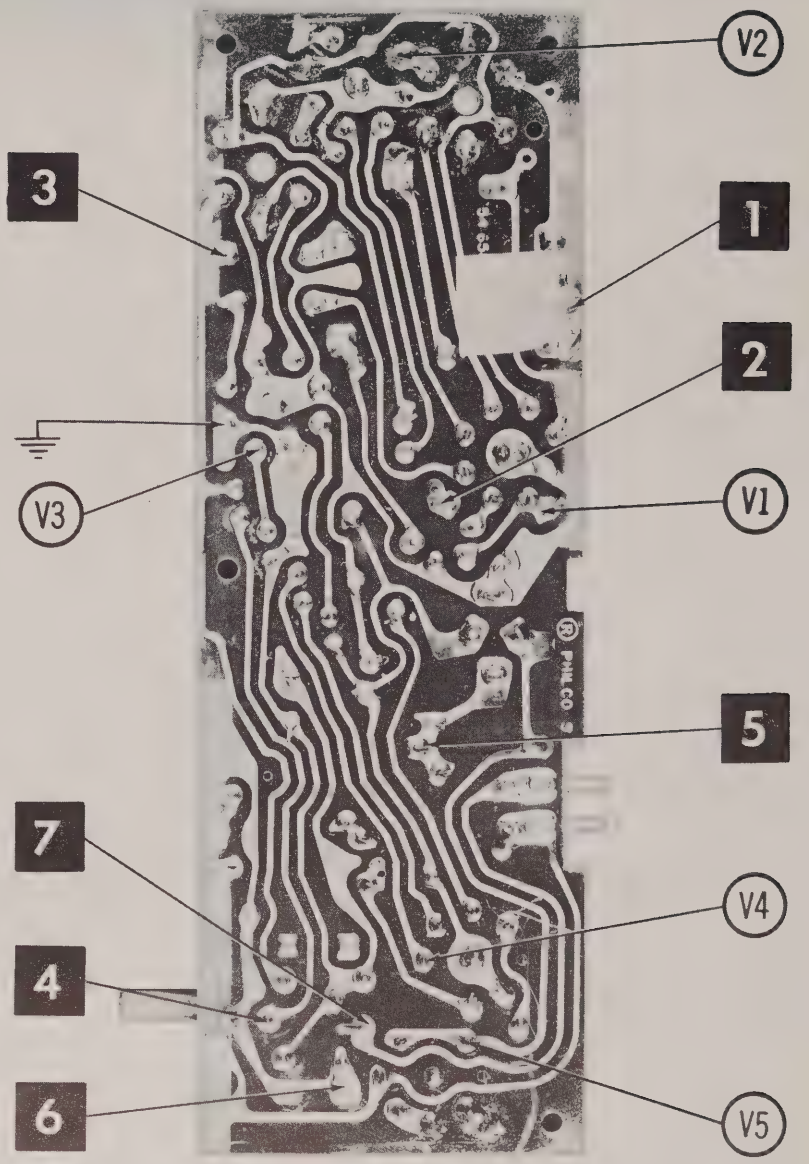
ITEM No.	USE	REPLACEMENT DATA					
		PHILCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Ant.	32-4757 ①					
L2	Osc. Coil	32-4756-1					
L3	Input IF	32-4583-20	16-6780	BC-356	13-PC1	RF-4	
L4	Output IF	32-4583-21	16-6780	BC-357	13-PC2	RF-4	

① Part #76-10521-1 (includes cabinet back) used in Models G-820, G-822
Part #76-10497-1 (includes cabinet back) used in Model G-826
Part #76-10535-1 (includes cabinet back) used in Model G-828

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST & DESCRIPTION (continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	3-4Ω	7937-1① ②	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	① Alternate part # 32-8384-2 ② Models G-820, G-822, G-824. ③ Models G-826, G-828. ④ Bend Ears down.
	2700Ω	3-4Ω	322-0054③	Z1101 ④	A-3025④	AU-605④	A-3332④	24S53④	S-12X④	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	36-1675-6①	4AIR	① Models G-820, G-822
	4"	PM		36-1675-3②		② Model G-824
	4"	PM		36-1675-4③		③ Model G-826
	4"	PM		36-1675-5④		④ Includes T1, Model G-826
	6"	PM		36-1681-1⑤		⑤ Includes T1, Model G-828
	4"x6"	PM		36-1676-2⑥		⑥ Model G-828

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	Lamp	34-2068	#47, Models G-826, G-828
M2	Tuning Cap.	31-2783-16	2 Gang, Models G-820, G-822
	Tuning Cap.	31-2783-13	2 Gang, Model G-824
	Tuning Cap.	31-2783-15	2 Gang, Models G-826, G-828
	Printed Board	54-6585	Models G-820, G-822, G-824
	Printed Board	54-6585-2	Models G-826, G-828

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

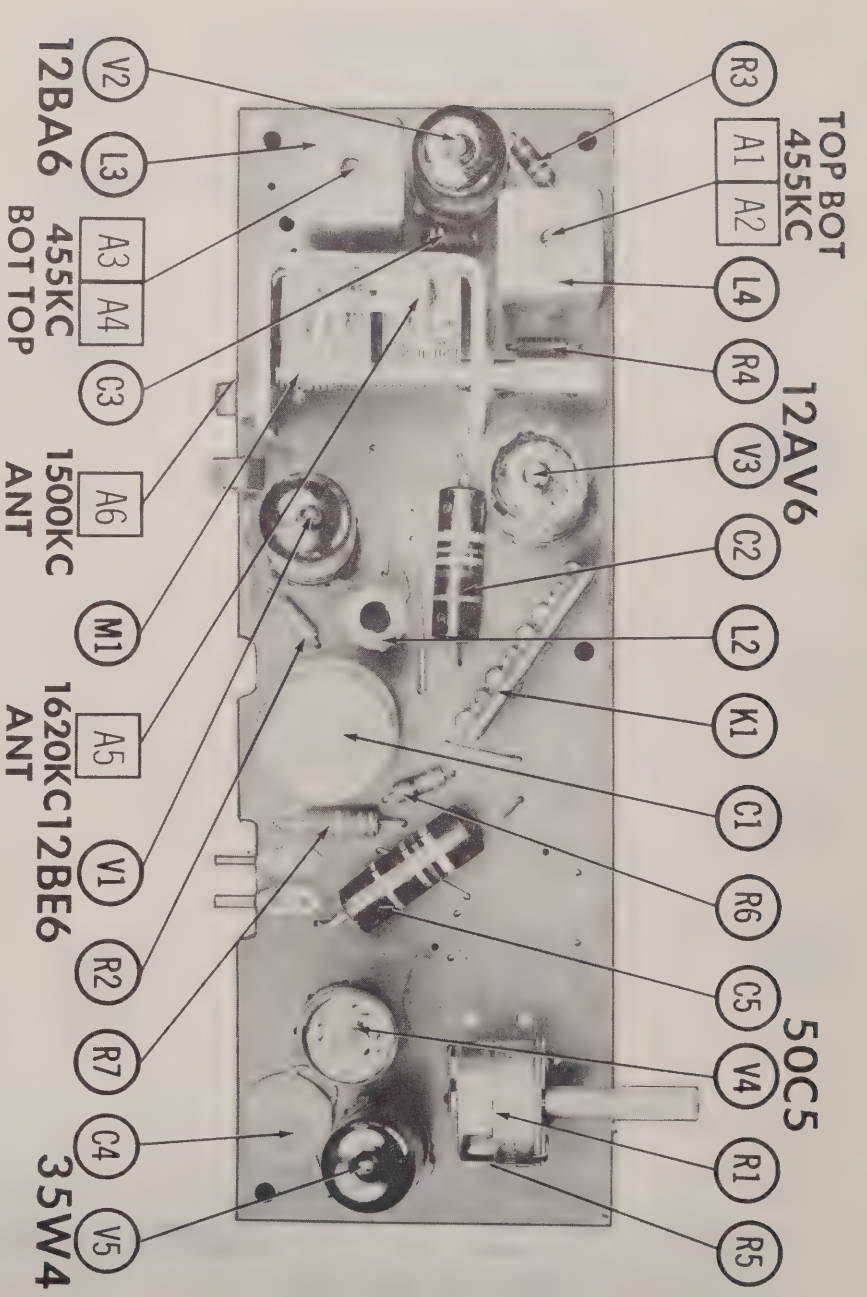
NAME	PART NO.	DESCRIPTION
Knob	54-6653-1	Tuning, Models G-820, G-822
Knob	54-6606-1	Tuning, Model G-824
Knob	54-6624-1	Tuning, Model G-826
Knob	54-6659-2	Tuning, Model G-828
Knob	54-6607-1	Volume-On-Off, Models G-820, G-822, G-824
Knob	54-6624-2	Volume-On-Off, Model G-826
Knob	54-6659-3	Volume-On-Off, Model G-828
Cabinet	51-0003-1	Lustre Ivory, Model G-822
Cabinet	51-0003	Mahogany, Model G-820
Cabinet	11322	Ivory And Black, Model G-824
Cabinet	11322-1	Pink And Black, Model G-824
Cabinet	11325	Lustre Ivory, Model G-826
Cabinet	11325-1	Flame, Model G-826
Cabinet	11325-2	Aqua, Model G-826
Cabinet	51-004-1	Mahogany, Model G-828
Dial	54-5355	Models G-820, G-822
Dial Plate	28-12251	Model G-824
Dial	54-6625-1	Model G-826
Dial	54-6661-1	Model G-828

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

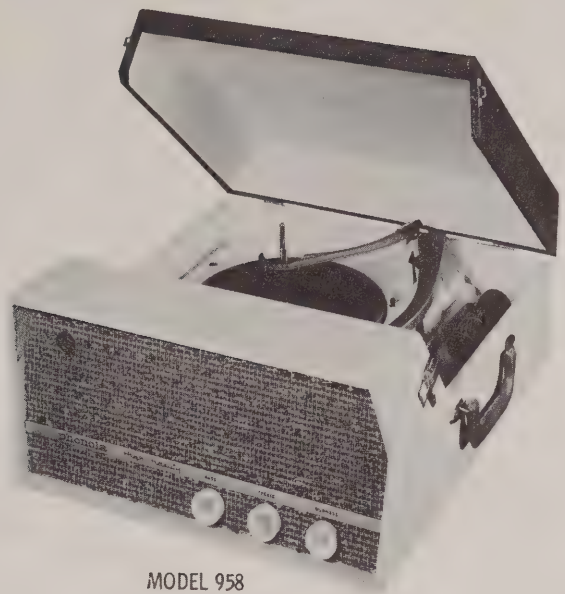
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW



PHOTOFACT* Folder

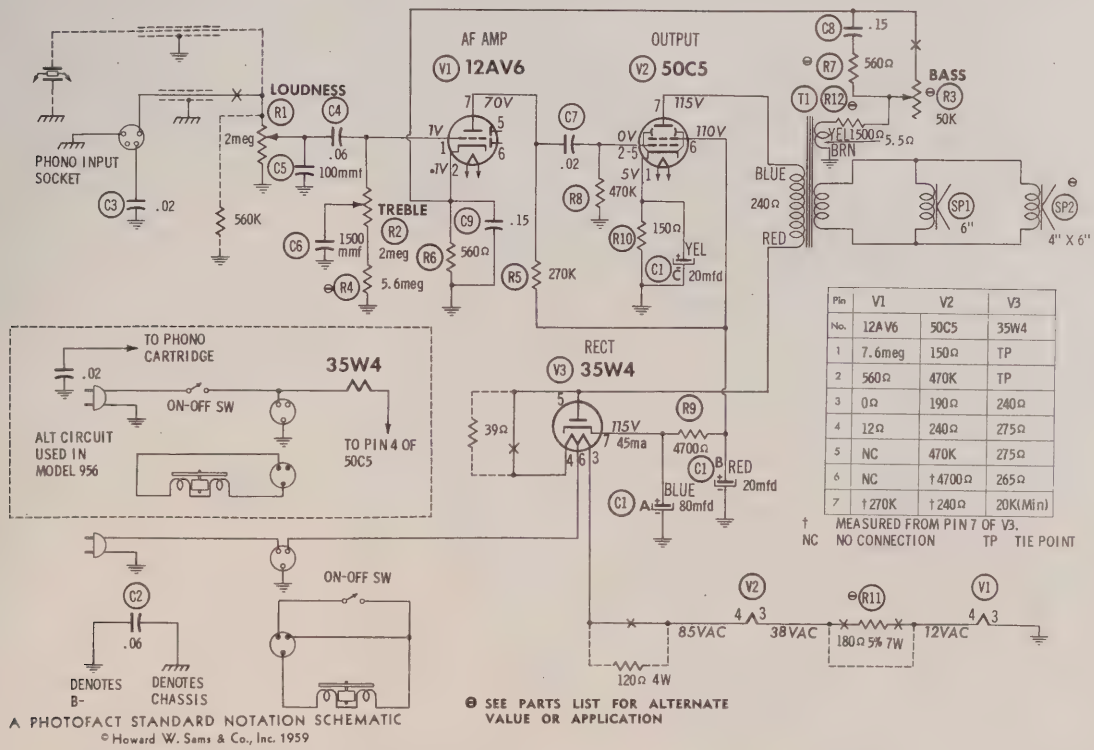
PHONOLA MODELS
956, 958



MODEL 958

TRADE NAME	Phonola Models 956, 958
MANUFACTURER	Waters Conley Co., Inc., Rochester, Minnesota
TYPE SET	AC Operated 3 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105-125 Volts AC, 60 Cycles — RATING 27 Watts, .26Amp. @ 117 Volts (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M 959 - PHOTOFACT SET 396 FOLDER 13.



Pin No.	V1 12AV6	V2 50C5	V3 35W4
1	7.6meg	150Ω	TP
2	560Ω	470K	TP
3	0Ω	190Ω	240Ω
4	12Ω	240Ω	275Ω
5	NC	470K	275Ω
6	NC	†4700Ω	265Ω
7	†270K	†240Ω	20K(Min)

† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 443 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHONOLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	12145	PRS150/25 V8040/20	BBRQ53215C	WQ230	CDB-T-1002	TVLS-3431. 9*	
B	20	150							
C	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA PHONOLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.06	200		11509	P288N-06		CUB6S6	GEM-416	6TM-S6	
C3	.02	200		11508	P288N-02	DD-203	CUB2S2	GEM-412	2TM-S2	
C4	.06	200		11509	P288N-06		CUB6S6	GEM-416	6TM-S6	
C5	100			11534	BPD-0001	DD-101	L10T1	B-310	5GA-T1	
C6	1500			12570	BPD-0015	DD-152	BYA10D15	B-215	5GA-D15	
C7	.02	200		11508	P288N-02	DD-203	CUB2S2	GEM-412	2TM-S2	
C8	.15	200		11510	P288N-15		CUB2P15	GEM-2015	2TM-P15	
C9	.15	200		11510	P288N-15		CUB2P15	GEM-2015	2TM-P15	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHONOLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	1/2	12400	B-76	A47-2meg-Z	Q13-139	U55	Loudness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Bushing			AK-26 †	XB-2 †	S4 †	EB158 †	
R2A	2meg	1/2	12400	B-76	A47-2meg-Z	Q13-139	U55	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Bushing			AK-26 †	XB-2 †	S4 †	EB158 †	
R3A	50K	1/2	12401	B-32	A47-50K-Z	Q13-123	U33	Bass, Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Bushing			AK-26 †	XB-2 †	S4 †	EB158 †	

† Saw off adaptor bushing to length required and enlarge mounting hole in cabinet to accommodate 7/16" bushing.
Note 1. Not used in Model 956.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	PHONOLA PART No.	NOTES
R4	5.6meg		10301	Note 1
R5	270K		8841	
R6	560Ω		10921	
R7	560Ω		10921	Note 1
R8	470K		10305	

ITEM No.	RATING OHMS	RATING WATT	PHONOLA PART No.	NOTES
R9	4700Ω		10429	
R10	150Ω		9897	
R11	180Ω 5%	7	13063	Note 2
R12	1500Ω		11143	Note 3

Note 1. Not used in Model 956.
Note 2. Model 956 uses 120Ω 4W in this application.
Note 3. Model 956 uses 2200Ω in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	REPLACEMENT DATA PHONOLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2300Ω	30Ω	11503	Z1001	A-2901	AU-608		24S60	S-51X	
		SEC. 2								
		1-2Ω								

CHASSIS—BOTTOM VIEW

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA PHONOLA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	11505	6A1 ①	① Used in Model 958 only.
SP2	4" x 6"	PM	3-4Ω	12712 ①	46A07 ①	② Used in Model 956 only.
	5 1/4"	PM	3-4Ω	10901 ②	52A1 ①	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA PHONOLA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M1	12827 ①	81-T				Model 958 ① Includes needles
	60-41	55-T or 81-TB	GD-J			Model 956

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA PHONOLA PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	61-42 ①	†S-66 or †♦S-66SD or ♦S-66D	†W-75TPS or †♦W-75DS or ♦W-75TPD	① Model 956 † **Jewel** ♦ **Diamond**

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

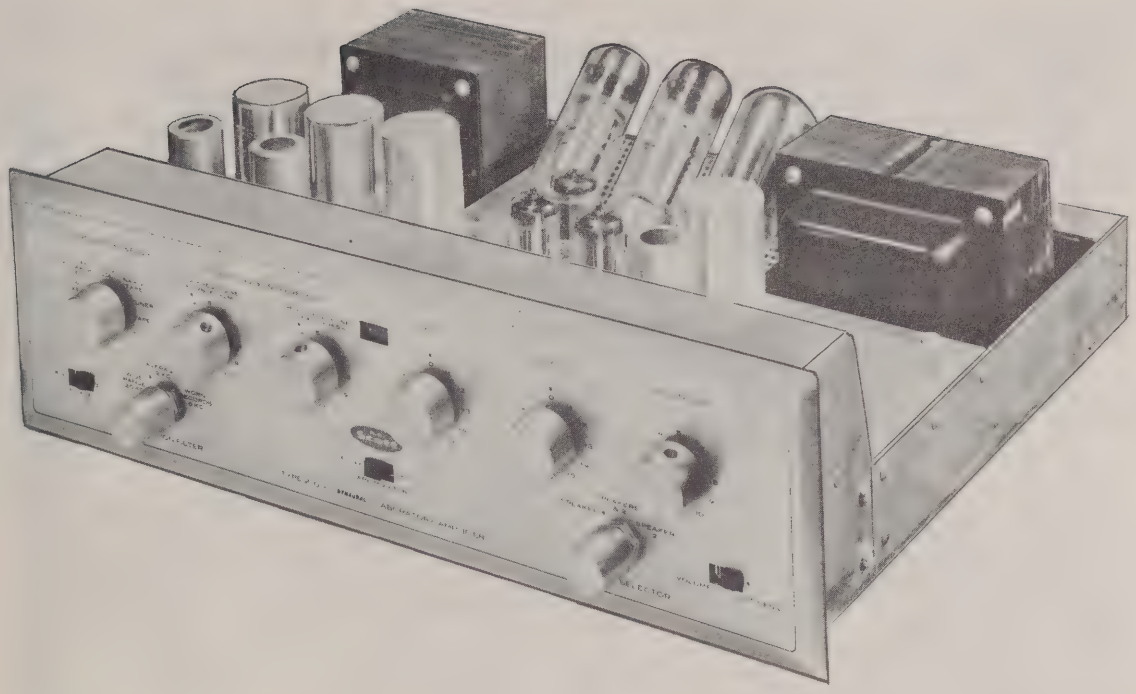
NAME	PART NO.	DESCRIPTION
Knob	13132-8E	3 Used, Model 958
Knob	12126-5C	2 Used, Model 956
Case	958	Model 958
Handle	12956-3B	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

H. H. SCOTT MODEL
210F

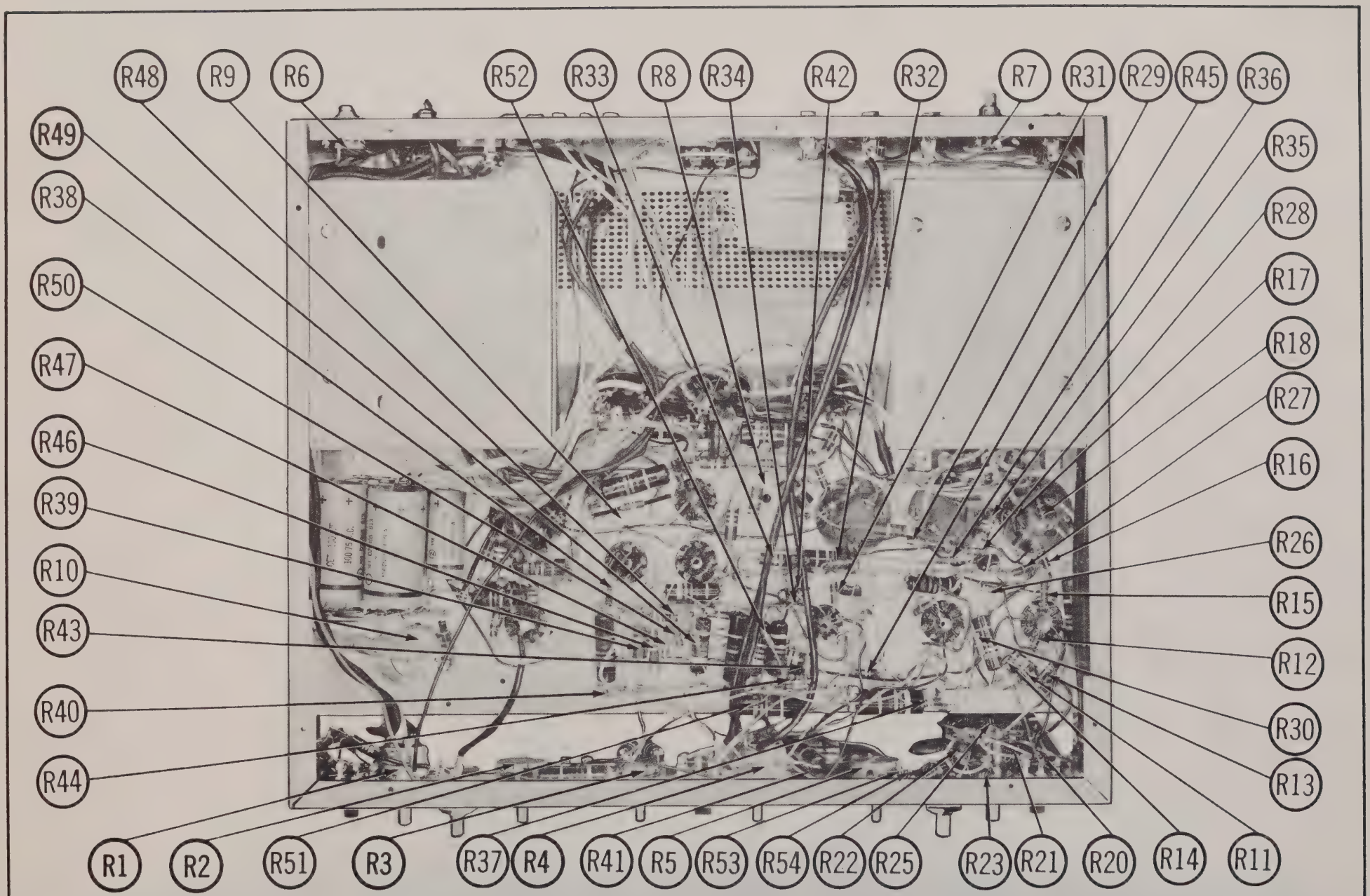


H. H. SCOTT MODEL
210F

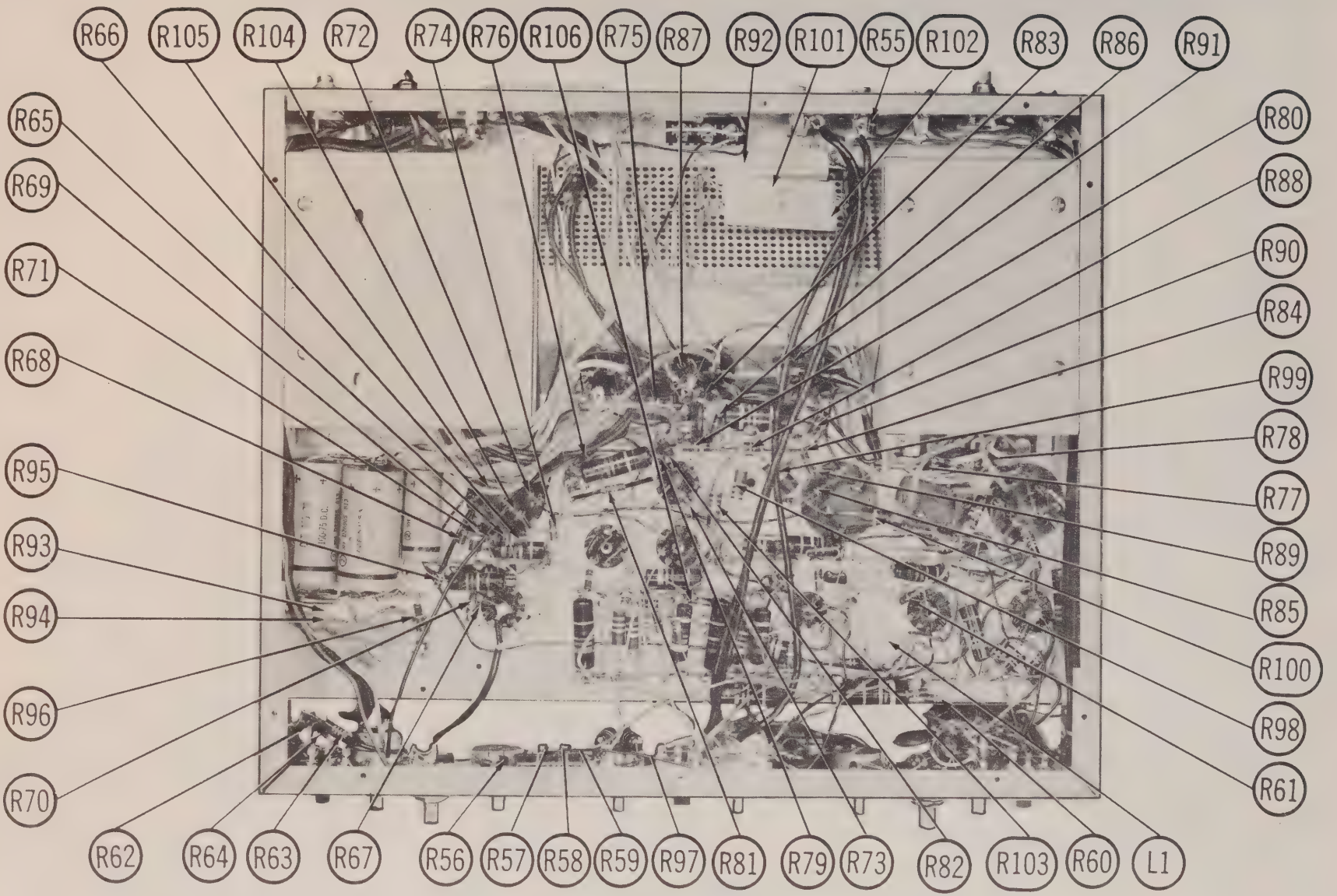
TRADE NAME	H. H. Scott Model 210-F
MANUFACTURER	Herman Hosmer Scott, Inc., 111 Powdermill Road, Maynard, Mass.
TYPE SET	AC Operated 10 Tube Audio Amplifier
POWER SUPPLY	105 - 125 Volts AC, 50-60 Cycles RATING 94 Watts, .8 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

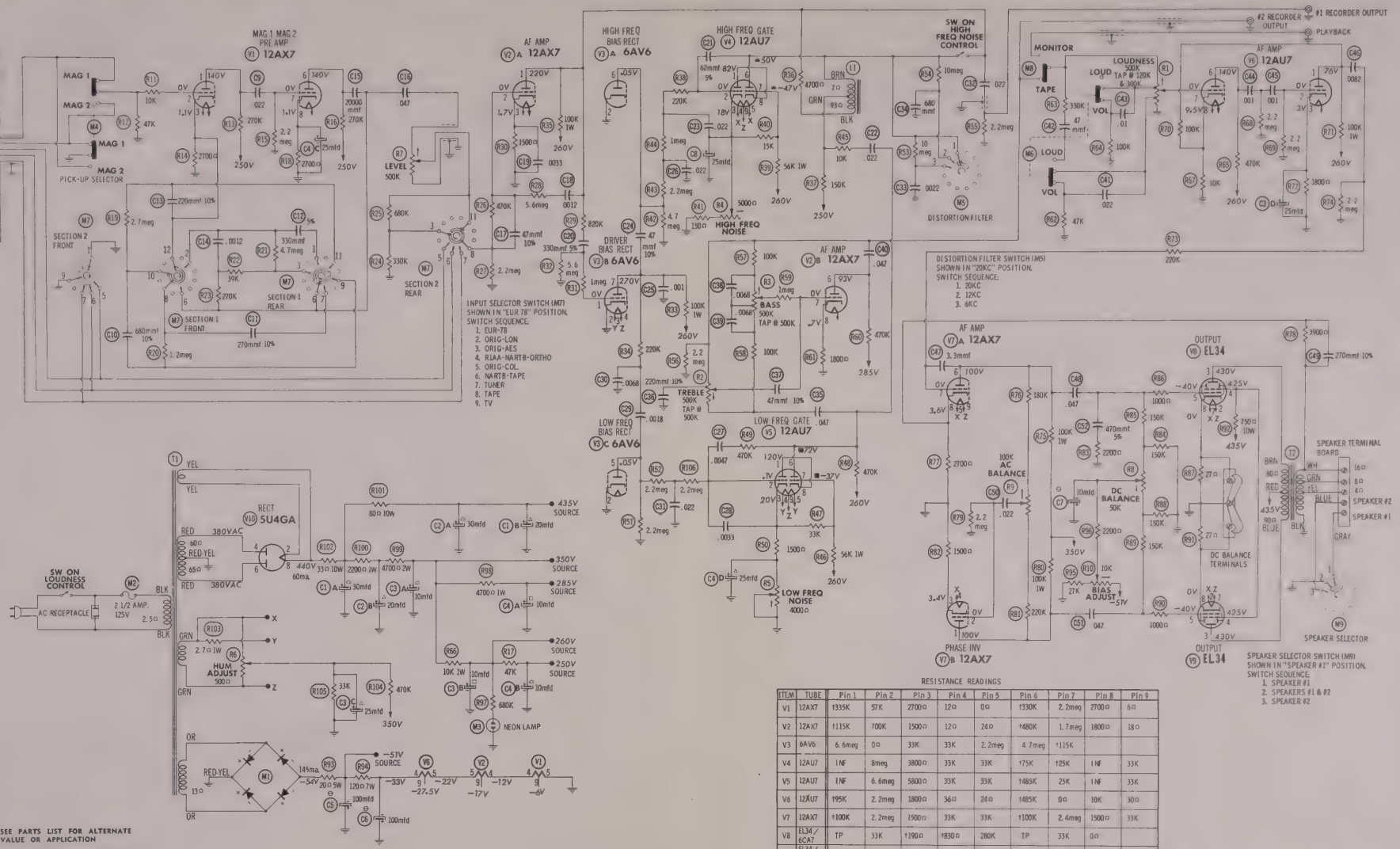
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



CHASSIS BOTTOM VIEW - RESISTOR IDENT. (R1-R54)



CHASSIS BOTTOM VIEW - RESISTOR IDENT. (R55-R106)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†335K	57K	2700Ω	12Ω	0Ω	†330K	2.2meg	2700Ω	6Ω
V2	12AX7	†115K	700K	1500Ω	12Ω	24Ω	†480K	1.7meg	1800Ω	18Ω
V3	6AV6	6.6meg	0Ω	33K	33K	2.2meg	4.7meg	†115K		
V4	12AU7	INF	8meg	3800Ω	33K	33K	†75K	†25K	INF	33K
V5	12AU7	INF	6.6meg	5800Ω	33K	33K	†485K	25K	INF	33K
V6	12AU7	†95K	2.2meg	1800Ω	36Ω	24Ω	†485K	0Ω	10K	30Ω
V7	12AX7	†100K	2.2meg	1500Ω	33K	33K	†100K	2.4meg	1500Ω	33K
V8	EL34/ 6CA7	TP	33K	†190Ω	†830Ω	280K	TP	33K	0Ω	
V9	EL34/ 6CA7	TP	33K	†200Ω	†830Ω	280K	NC	33K	0Ω	
V10	5U4GA	NC	¶	TP	60Ω	NC	65Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 2 OF V10.
▲ MEASURED FROM PIN 8 OF V4.
■ MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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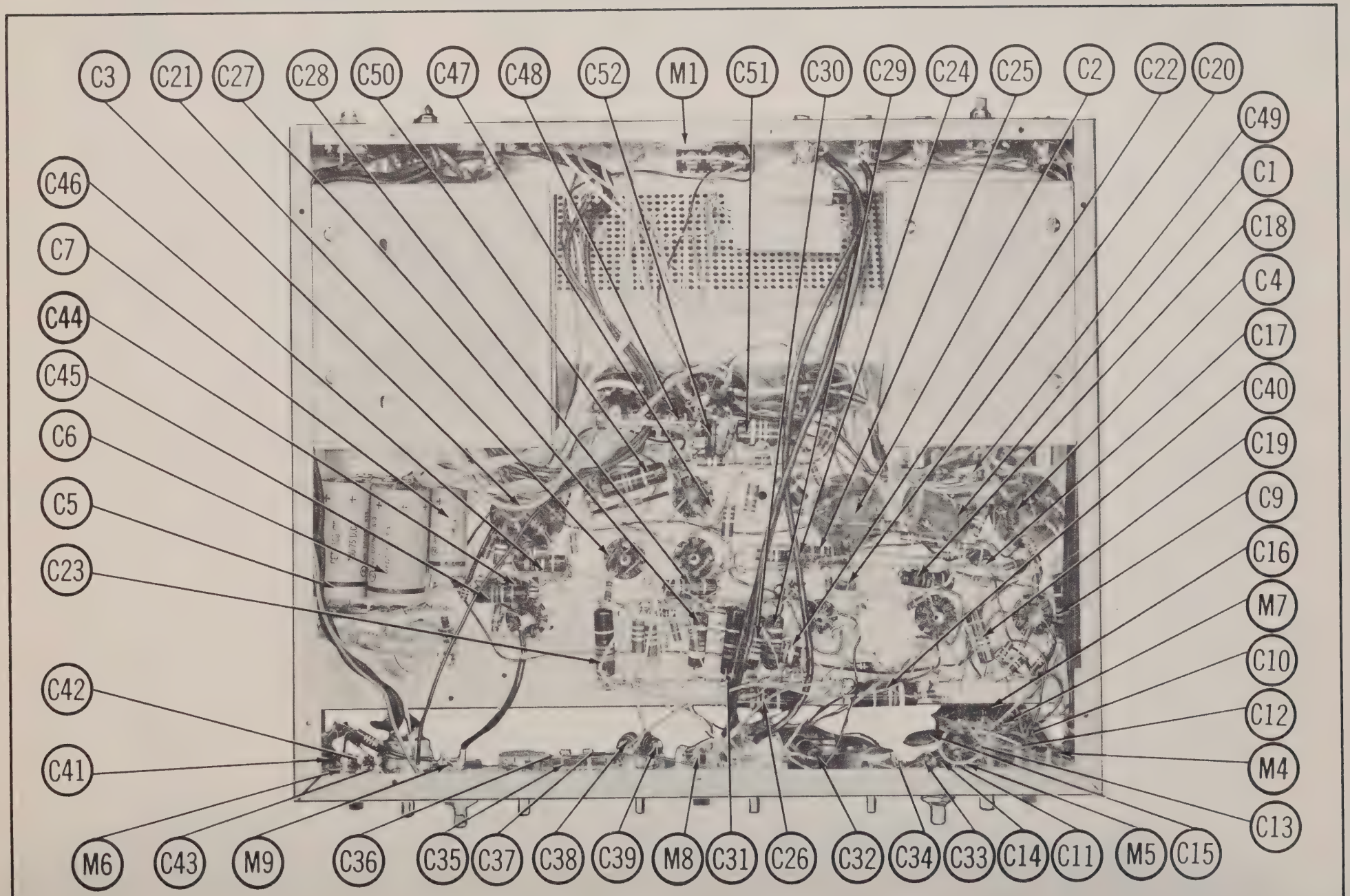
H. H. SCOTT MODEL 210F



CHASSIS BOTTOM VIEW - CAPACITOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mag 1-Mag 2-Pre Amp.	12AX7	
V2	AF Amplifier	12AX7	
V3A	Bias Rect. Driver	6AV6	
B	High Freq. Bias Rect.		
C	Low Freq. Bias Rect.		
V4	High Freq. Gate	12AU7	
V5	Low Freq. Gate	12AU7	

ITEM No.	USE	TYPE	NOTES
V6	AF Amplifier	12AU7	
V7	AF Amp. -Phase Inv.	12AX7	
V8	Output	EL34/6CA7	
V9	Output	EL34/6CA7	
V10	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA H. H. SCOTT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	475	CEC-30-20/475	AFH2-65	B0486	FP283		TVLS-2826*	
B	▲20	475			BR1250	TC81			
C2A	▲30	475	CEC-30-20/475	AFH2-65	B0486	FP283		TVLS-2826*	
B	▲20	475			BR1250	TC81			
C3A	▲10	450	CEC-2X10-2X25	AFH4-63	D0880		TMQ-72	TVL-4711.6	
B	■10	450							
C	▲25	25							
D	25	25							
C4A	■10	450	CEC-2X10-2X25	AFH4-63	D0880	FP376.6	TMQ-72	TVL-4711.6	
B	▲10	450				TC26			
C	25	25							
D	▲25	25							
C5	100	75	CET-100/75 ①	PRS150V100	BR10015	TC493	TD-100-150	TVA-1420	
C6	100	75	CET-100/75 ①	PRS150V100	BR10015	TC493	TD-100-150	TVA-1420	
C7	10	75	CET-10/75 ①	PRS150V10	BBR10-150	TC42	TD-10-150	TVA-1406	
C8	25	25	CET-25/25	PRS25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	

① In some versions C5, C6, C7 may be combined in one unit. (Part #CEC-2X100-10CP)
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA H. H. SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C9	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C10	680		10%	CM20-680	1469-00068	D6-681	1R5T68		MS-368	
C11	270		10%	CM15-270	1469-00027	D6-271	5R5T27		MS-327	
C12	330		5%	CM15-330	1469-00033	D6-331	5R5T33		MS-333	
C13	220		10%	CM15-220	1469-00022	D6-221	22R5T22		MS-322	
C14	.0012	400		CPM-.0012		DD-122	CUB6D15	GEM-421	6TM-D1	
C15	20000			CC-02	BPD-02	DD-203	BYB6S2	B-120	5HK-S1	
C16	.047	400		CPM-047	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C17	47		10%	CM15-47	1469-000047	DD-470	22R5Q47		MS-447	
C18	.0012	400		CPM-.0012		DD-121	CUB6D15	GEM-421	6TM-D1	
C19	.0033	400		CPM-.0033	P488N-0033	DD-332	CUB6D33	GEM-6233	6TM-D33	
C20	330		5%	CM15-330	1469-00033		22R5T33		MS-333	
C21	62		5%	CM15-62	1469-000062	TCZ-62	22R5Q62		MS-462	
C22	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	6TM-S22	
C23	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	6TM-S22	
C24	47		10%	CM15-47	1469-000047	DD-470	22R5Q47		MS-447	
C25	.001	400		CPM-.001	P488N-.001	DD-102	CUB6D1	GEM-421	6TM-D1	
C26	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C27	.0047	400		CPM-.0047	P488N-0047	DD-472	CUB6D47	GEM-6247	6TM-D47	
C28	.0033	400		CPM-.0033	P488N-0033	DD-332	CUB6D33	GEM-6233	6TM-D33	
C29	.0018	400		CPM-.0018		DD-182	CUB6D15	GEM-421	6TM-D2	
C30	.0068	400		CPM-.0068	P488N-0068	DD-682	CUB6D68	GEM-6268	6TM-D68	
C31	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C32	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C33	.0022	400		CPM-.0022	P488N-0022	DD-221	CUB6D22	GEM-6222	6TM-D22	
C34	680			CM15-680	1469-00068	DD-681	1R5T68		MS-368	
C35	.047	400		CPM-.047	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C36	220		10%	CM15-220	1469-00022	D6-221	22R5T22		MS-322	
C37	47		10%	CM15-47	1469-000047	DD-470	22R5Q47		MS-447	
C38	.0068	400		CPM-.0068	P488N-0068	DD-682	CUB4D68	GEM-6268	6TM-D68	
C39	.0068	400		CPM-.0068	P488N-0068	DD-682	CUB4D68	GEM-6268	6TM-D68	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA H. H. SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C40	.047	400		CPM-.047	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C41	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C42	47		10%	CM15-47	1469-000047	DD-470	22R5Q47		MS-447	
C43	.01	400		CPM-.01	P488N-01	DD-103	CUB4S1	GEM-411	4TM-S1	
C44	.001	400		CPM-.001	P488N-001	DD-102	CUB6D1	GEM-421	6TM-D1	
C45	.001	400		CPM-.001	P488N-001	DD-102	CUB6D1	GEM-421	6TM-D1	
C46	.0082	400		CPM-.0082	P488N-0082		CUB16D8	GEM-6282	MB-D8	
C47	3.3			CC-3.3	NPO-SI 3.3	DD-3R3	CTA6V33C	ZT-5533	15GAB-V33	
C48	.047	400		CPM-.047	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C49	270		10%	CM15-470	1469-00027	D6-271	5R5T27		MS-327	
C50	.022	400		CPM-.022	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C51	.047	400		CPM-.047	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C52	470		5%	CM15-470	1469-00047		5R5T47		MS-347	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA H. H. SCOTT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	RCV-500K-TT-3FSW	BT-160		Q18-133XX	UDT-283	Loudness Taps at 120K, 300K
B	Switch			KR-1		76-1	US-26	
R2A	500K	½	RCV-1meg-T-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Treble. Tap at 500K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	RCV-1meg-T-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Bass. Tap at 500K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	5000Ω	½	RCV-4K-3F-SW	B-12		Q17-114		High Freq. Noise
B	Switch			KR-2		76-2		
R5	4000Ω	½	RCV-4000-3F	B-12		Q17-114		Low Freq. Noise
R6A	500Ω	½	RCV-500-S	AB-4	A47-500-S	Q11-103	U2	Hum Adjustment
B	Shaft			AK-1	FKS-1/4	R Q	Not Req.	
R7A	500K	½	RCV-500K-P	BX-59	A47-500K-S	Q11-133	U50	Level
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R8A	50K	½	RCV-50K-3F	AB-31	A47-50K-S	Q11-123	U35	DC Balance
B	Shaft			AK-9	RS-2	P Q	Not Req.	
R9A	100K	½	RCV-100K-P	AB-40	A47-100K-S	Q11-128	U41	AC Balance
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	
R10A	10K	½	RCV-10K-P	AB-14	A47-10K-S	Q11-116	U20	Bias Adjust
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	H. H. SCOTT PART No.	NOTES
R11	10K		RC21-10K	
R12	47K		RC21-47K	
R13	270K		RC21-270K	
R14	2700Ω		RC21-2.7K	
R15	2.2meg		RC21-2.2M	
R16	270K		RC21-270K	
R17	47K		RC21-47K	
R18	2700Ω		RC21-2.7K	
R19	2.7meg		RC21-2.7M	
R20	1.2meg		RC21-1.2M	
R21	4.7meg		RC21-4.7M	
R22	39K		RC21-39K	
R23	270K		RC21-270K	
R24	330K		RC21-330K	
R25	680K		RC21-680K	
R26	470K		RC21-470K	
R27	2.2meg		RC21-2.2M	
R28	5.6meg		RC21-5.6M	
R29	820K		RC21-820K	
R30	1500Ω		RC21-1.5K	
R31	1meg		RC21-1M	
R32	5.6meg		RC21-5.6M	
R33	100K	1	RC31-100K	
R34	220K		RC21-220K	

ITEM No.	RATING OHMS	RATING WATT	H. H. SCOTT PART No.	NOTES
R35	100K	1	RC31-100K	
R36	4700Ω		RC21-4.7K	
R37	150K		RC21-150K	
R38	220K		RC21-220K	
R39	56K	1	RC31-56K	
R40	15K		RC21-15K	
R41	150Ω		RC21-150	
R42	4.7meg		RC21-4.7M	
R43	2.2meg		RC21-2.2M	
R44	1meg		RC21-1M	
R45	10K		RC21-10K	
R46	56K	1	RC31-56K	
R47	33K		RC21-33K	
R48	470K		RC21-470K	
R49	470K		RC21-470K	
R50	1500Ω		RC21-1.5K	
R51	2.2meg		RC21-2.2M	
R52	2.2meg		RC21-2.2M	
R53	10meg		RC21-10M	
R54	10meg		RC21-10M	
R55	2.2meg		RC21-2.2M	
R56	2.2meg		RC21-2.2M	
R57	100K		RC21-100K	
R58	100K		RC21-100K	

PARTS LIST & DESCRIPTION (continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	H. H. SCOTT PART No.	NOTES
R59	1meg		RC21-1M	
R60	470K		RC21-470K	
R61	1800Ω		RC21-1.8K	
R62	47K		RC21-47K	
R63	330K		RC21-330K	
R64	100K		RC21-100K	
R65	470K		RC21-470K	
R66	10K	1	RC31-10K	
R67	10K		RC21-10K	
R68	2.2meg		RC21-2.2M	
R69	2.2meg		RC21-2.2M	
R70	100K		RC21-100K	
R71	100K	1	RC31-100K	
R72	1800Ω		RC21-1.8K	
R73	220K		RC21-220K	
R74	2.2meg		RC21-2.2M	
R75	100K	1	RC31-100K	
R76	180K		RC21-180K	
R77	2700Ω		RC21-2.7K	
R78	3900Ω		RC21-3.9K	
R79	2.2meg		RC21-2.2M	
R80	100K	1	RC31-100K	
R81	220K		RC21-220K	
R82	1500Ω		RC21-1.5K	

ITEM No.	RATING OHMS	RATING WATT	H. H. SCOTT PART No.	NOTES
R83	2200Ω		RC21-2.2K	
R84	150K		Rc21-150K	
R85	150K		RC21-150K	
R86	1000Ω		RC21-1K	
R87	27Ω		RC21-27	
R88	150K		RC21-150K	
R89	150K		RC21-150K	
R90	1000Ω		RC21-1K	
R91	27Ω		RC21-27	
R92	750Ω	10	RW10-750	
R93	20Ω	5	RW5-20	
R94	120Ω	7	RW7-120	
R95	27K		RC21-27K	
R96	2200Ω		RC21-2.2K	
R97	680K		RC21-680K	
R98	4700Ω	1	RC31-4.7K	
R99	4700Ω	2	RC41-4.7K	
R100	2200Ω	1	RC31-2.2K	
R101	80Ω	10	RW10-80	
R102	33Ω	10	RW10-33	
R103	2.7Ω	1	RC31-2.7	
R104	470K		RC21-470K	
R105	33K		RC21-33K	
R106	2.2meg		RC21-22M	

CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA H. H. SCOTT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1		100Ω Tap ⓐ 7Ω	.630 HY Full Winding							

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA H. H. SCOTT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .8A	760 VCT ⓐ .060A	5V ⓐ 3A	TR-12-3						
	SEC. 3	SEC. 4	SEC. 5							
	51V ⓐ .145A	6.3V ⓐ 4A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA H. H. SCOTT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4400Ω CT	16Ω Tap ⓐ 8Ω, 4Ω	TRA-10-16							

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA H. H. SCOTT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.145A	SR-60/150			F2①	① Silicon Type Use 4

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA H. H. SCOTT PART No. FUSE	H. H. SCOTT PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	2½A 125V S/B			31302.5 (3AG 2½A 125V) S/B	342012	MDL2½	HKP-CC

MISCELLANEOUS

ITEM No.	PART NAME	H. H. SCOTT PART No.	NOTES
M3	Neon Lamp		Power On-Off Indication
M4	Switch	SS-22	Pickup Selector (DPDT, Slide Type)
M5	Switch	SRW-13-6	Distortion Filter (3 Position, Rotary Wafer Type)
M6	Switch	SS-22	Loudness-Volume (DPDT, Slide Type)
M7	Switch	SRW-59	Input Selector (Rotary Wafer Type)
M8	Switch	SS-22	Tape Monitor (DPDT, Slide Type)
M9	Switch	SRW-13-6	Speaker Selector (Rotary Wafer Type)

CABINETS & CABINET PARTS

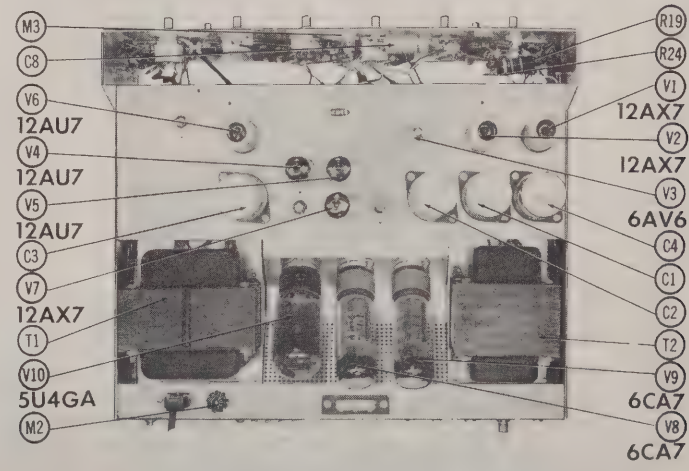
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KN-P-5W	Level Control, Small
Knob	KN-R-8W	Front Panel, 8 Used
Front Panel	N-209-1	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



CHASSIS—TOP VIEW

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SILVERTONE MODELS 8055B, 8056B (Ch. 528.53450)

SILVERTONE MODELS
8055B, 8056B (Ch. 528.53450)

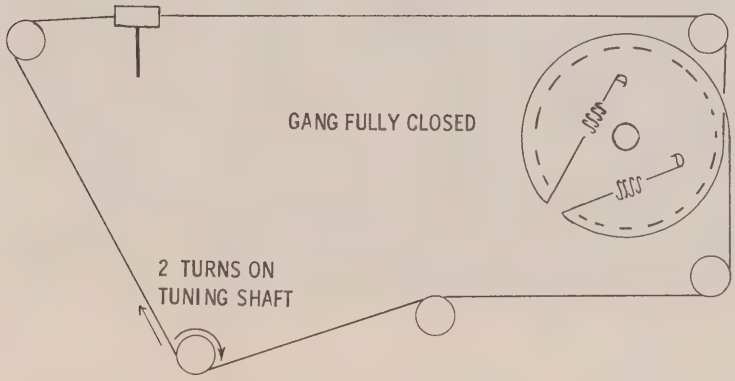
MODEL 8055B

SILVERTONE MODELS
8055B, 8056B (Ch. 528.53450)

TRADE NAME	Silvertone Models 8055B, 8056B (Ch. 528. 53450)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	AC Operated 10 Tube FM-AM Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	110 Watts, 1. 05 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 535 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR SILVERTONE 528. 56310 - PHOTOFACT SET 417 FOLDER 10

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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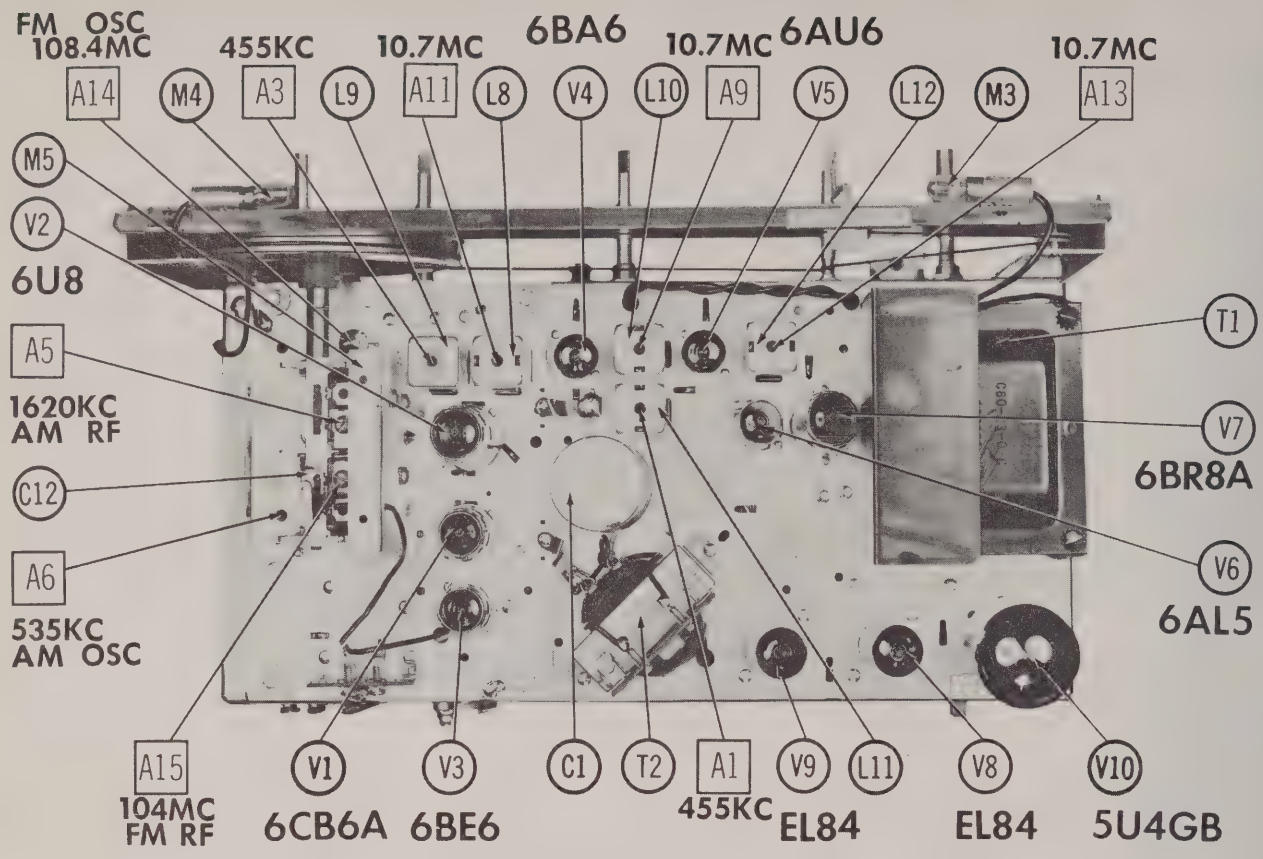
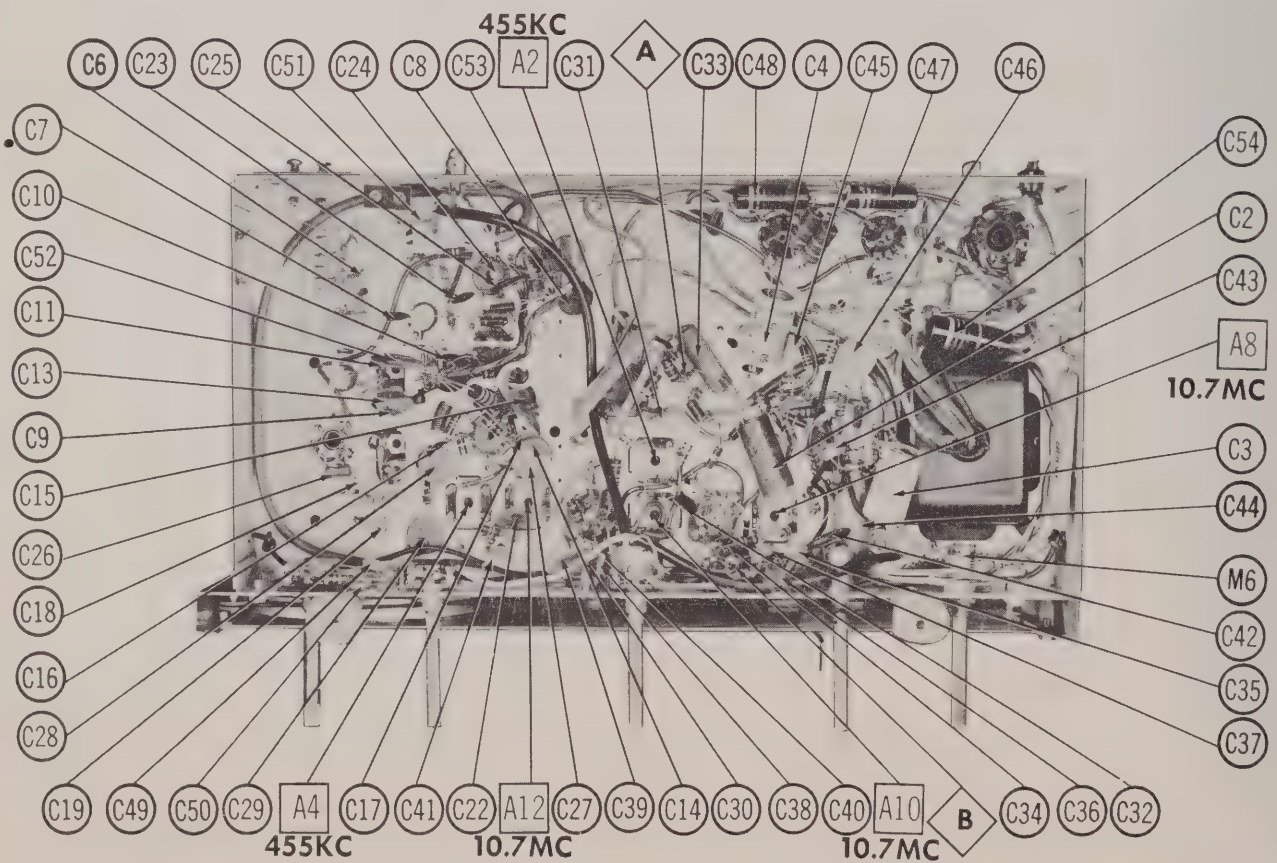
J54

SET 443 FOLDER 12



CHASSIS TOP - VIEW



CHASSIS BOTTOM VIEW - ALIGN, CAPACITOR & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A8 thru A13..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A3, A4..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A5, A7, A14, A15..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	535KC	"	535KC	"	A6	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement is noted.
4.		"	1400KC	"	Tune to 1400KC signal	"	A7	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.		High side to ungrounded tube shield floating over 6U8 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Tuning gang fully open	DC probe to point Ⓐ. Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.		"	"	"	"	DC probe to point Ⓑ. Common to point Ⓐ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.		High side to ungrounded tube shield floating over 6U8 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open	Vert. Amp. to point Ⓐ. Low side to chassis.	A8, A9, A10, A11, A12	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.		"	"	"	"	Vert. Amp. to point Ⓑ. Common to chassis.	A13	Reconnect C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108.4MC (400∿ Mod. 450KC Swp)	FM	108.4MC	Across voice coil	A14	Adjust for maximum output.
8.	"	"	87.6MC	"	87.6MC	"	L4	Adjust for maximum output by compressing or expanding coil turns while rocking tuning gang. Repeat 7 & 8 until full coverage of band is attained.
9.	"	"	104MC	"	104MC	"	A15	Adjust for maximum output.
10.	"	"	98MC	"	98MC	"	L1	Adjust for maximum output by compressing or expanding coil turns.
11.	"	"	90MC	"	90MC	"	L3	"

FIG. 1

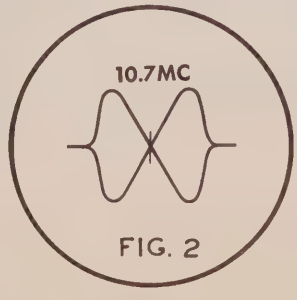
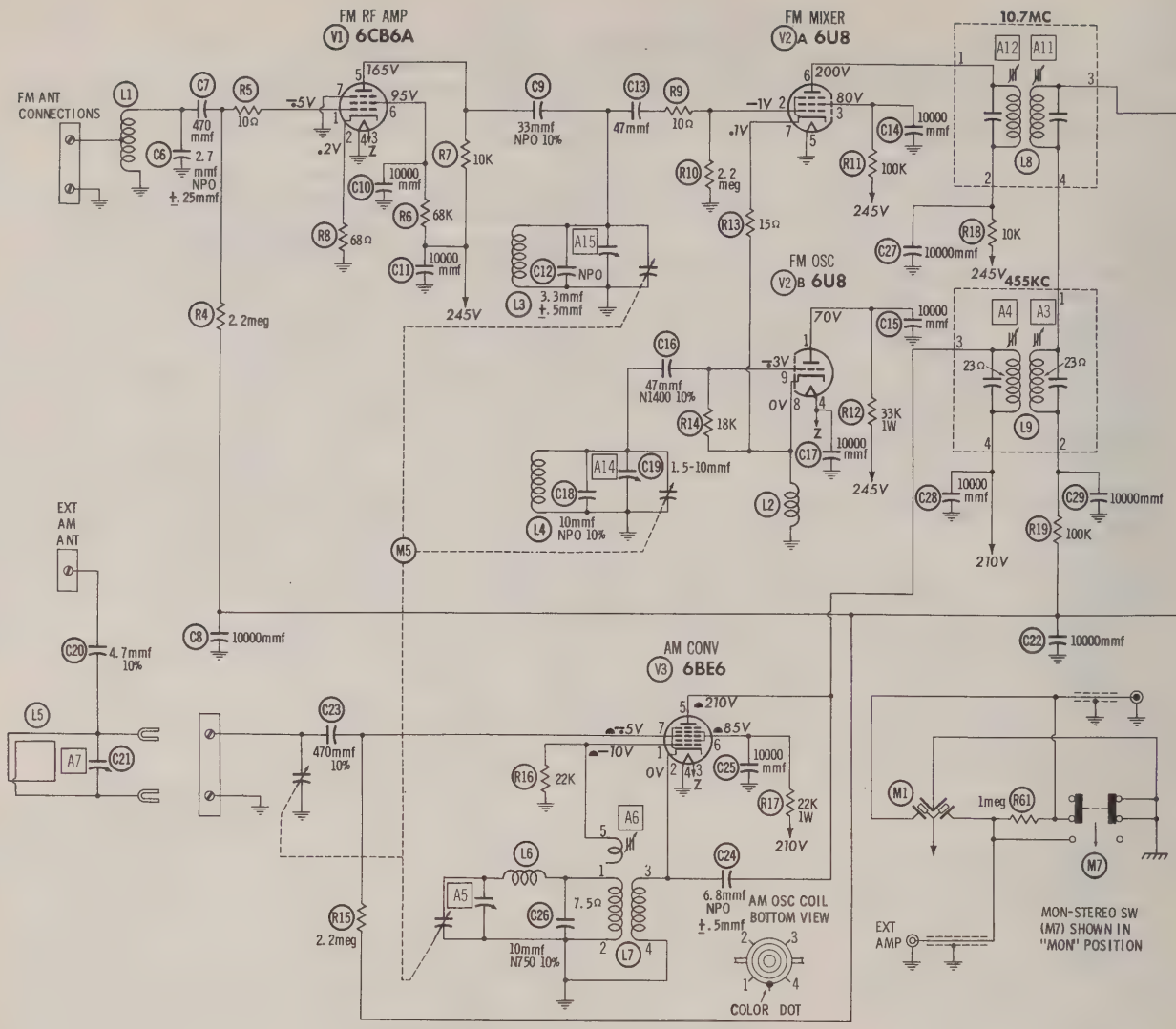


FIG. 2



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	2.8meg ▪ 4.5meg	68Ω	.1Ω	0Ω	†12K	†70K	0Ω		
V2	6U8	†35K	2.2meg	†100K	.1Ω	0Ω	†12K	15Ω	0Ω	18K
V3	6BE6	▪22K	.9Ω	.1Ω	0Ω	†▪6300Ω	†▪28K	▪4.5meg		
V4	6BA6	500K	0Ω	0Ω	.1Ω	†5500Ω	†83K	68Ω		
V5	6AU6	250K	0Ω	0Ω	.1Ω	†6300Ω	†57K	68Ω		
V6	6AL5	0Ω	15K	1.9Ω	.1Ω	INF	0Ω	INF		
V7	6BR8A	1meg	†150K	48K	.7Ω	0Ω	†370K	†2.3meg	1000Ω	1meg
V8	EL84 6BQ5	470K	470K	135Ω	.1Ω	0Ω	NC	†215Ω	NC	†750Ω
V9	EL84 6BQ5	470K	470K	135Ω	.1Ω	0Ω	NC	†215Ω	NC	†750Ω
V10	5U4GB	NC	¶	NC	32Ω	NC	35Ω	NC	¶	

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▪ MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 8 OF V10.
▪ MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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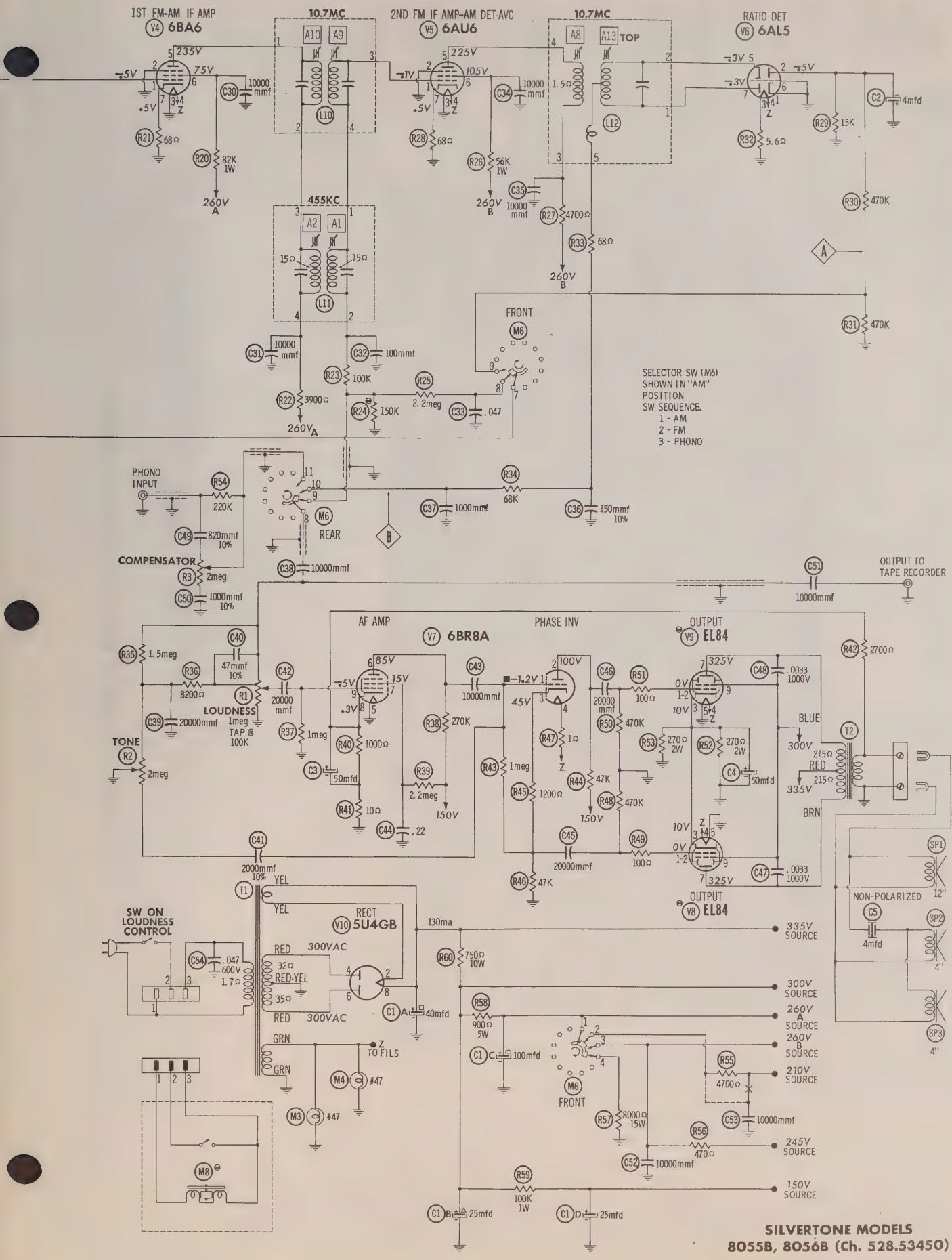
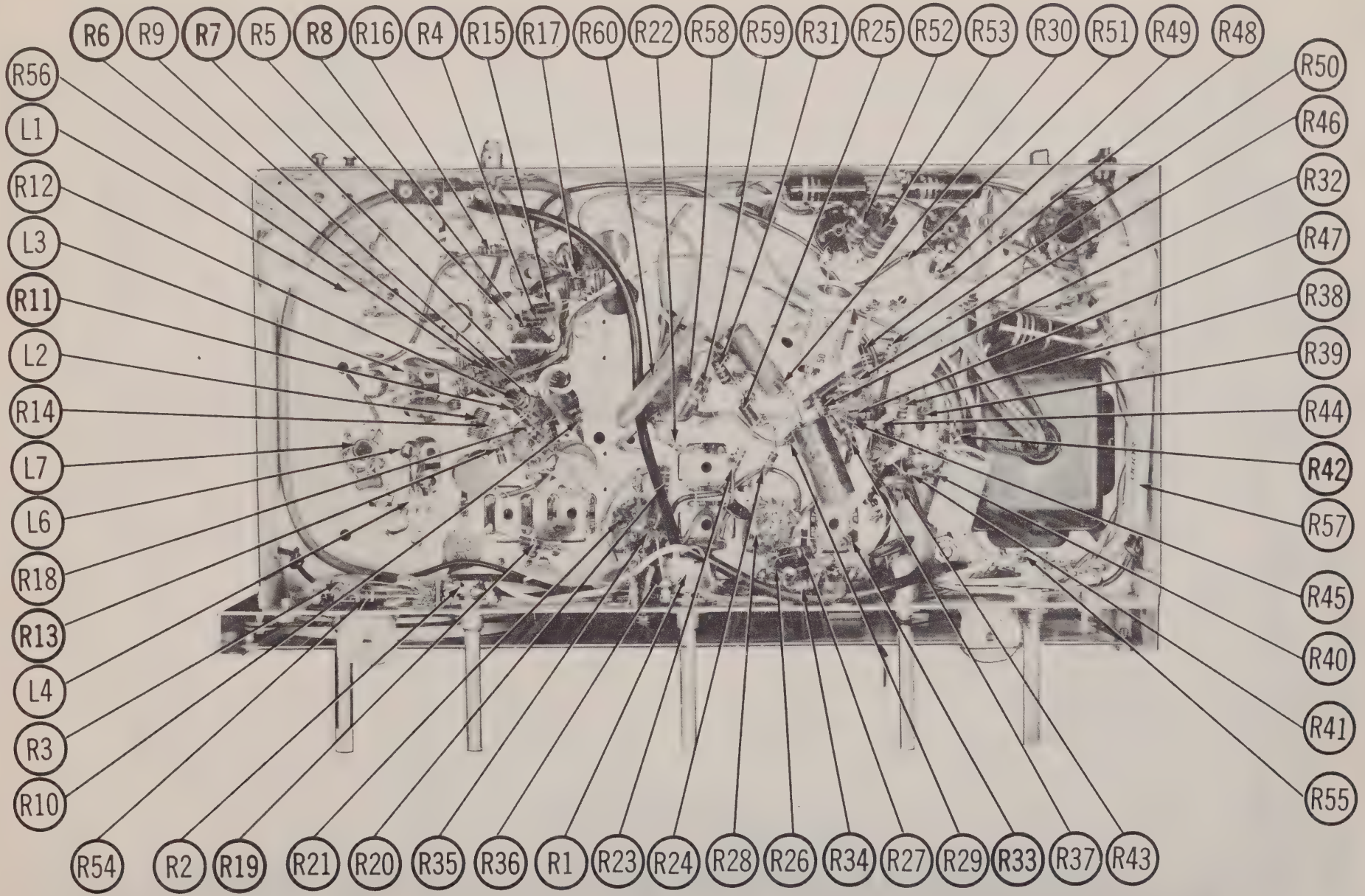


SILVERTONE MODELS
8055B, 8056B (Ch. 528.53450)



CHASSIS BOTTOM VIEW - RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6CB6A	
V2	FM Mixer - FM Osc.	6U8	
V3	AM Converter	6BE6	
V4	1st FM-AM IF Amplifier	6BA6	
V5	2nd FM IF Amplifier-AM Det. - AVC	6AU6	

ITEM No.	USE	TYPE	NOTES
V6	Ratio Detector	6AL5	
V7	AF Amp. - Phase Inv.	6BR8A	
V8	Output	EL84/6BQ5	
V9	Output	EL84/6BQ5	
V10	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	350	18-35-3	AFH4-58-75	D0044	FP420.39		TVLS-4635.11*	
B	▲25	350			BR2035				
C	●100	350							
D	25	350							
C2	4	50	18-25-0	PRS150V4	BBR4-50	TT50X4	TD-4-50	TVA-1402	
C3	50	25	18-23-0	PRS25V50	BBR50-25	TC29	TD-50-25	TVA-1206	
C4	50	25	18-23-0	PRS25V50	BBR50-25	TC29	TD-50-25	TVA-1206	
C5	4	150NP	18-9-5	NP-PRS450V4	BBR8-150 † BBR8-150 †	TCN510	TD-8-150 † TD-8-150 †	TVAS-1402.1 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Connect Negative Leads Together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA					
	CAP.	VOLT	TOL	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	2.7		NPO ±.25mmf	15-279121					5TCCB-V27S ±.25mmf*
C7	470			15-47111	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47
C8	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C9	33		NPO 10%	15-330611	NPO-SI 33	TCZ-33	CTA6Q33C	CNO-433	5TCC-Q33S 10%*
C10	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C11	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C12	3.3		NPO ±.5mmf	15-339131	NPO-DI 3.3	DTZ-3R3	C10V33C	CNO-533	5TCCB-V33S ±.5mmf *
C13	47			15-470611	NPO-SI 47	TCZ-47	CTA6Q47C	CNO-447	5TCC-Q47S 10%*
C14	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C15	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C16	47		N1400 10%	15-470115					
C17	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C18	10		NPO 10%	25-125-0	NPO-SI 10	TCZ-10	CTA6Q1C	CNO-410	5TCC-Q1S 10%*
C19	1.5-10			19-2-5		829-10			
C20	4.7		10%	20-23-0	NPO-SI 4.7	TCZ-4R7	CTA6V47C	CNO-547	5TCCB-V47S 10%*
C21				19-165-0					
C22	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C23	470		10%	15-47111	DI-470	MD-471		JL-347	5GA-T47S 10% *
C24	6.8		NPO ±.5mmf	15-689131	NPO-DI 6.8	DTZ-6R8	C10Q68C	CNO-568	5TCCB-V68S ±.5mmf *
C25	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C26	10		N750 10%	15-100614	N750-SI 10	TCN-10	CTA6Q1U	CN7-410	5TCU-Q1S 10% *
C27	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C28	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C29	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C30	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C31	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C32	100			15-10116	BPD-0001	DD-101	L10T1	2HV-310	5GA-T1
C33	.047	200		16-47328	P288N-047	DF-503	CUB4S47	GEM-4147	4TM-S47
C34	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C35	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C36	150		10%	15-15111	DI-150	DD-151	L10T15	JL-315	5GA-T15S 10% *
C37	1000			15-10261	SI 1000	D6-102	LT6D1	B-210	5HK-D1
C38	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C39	20000			15-20317	BPD-02	DD-203	BYB6S2	B-120	5GA-S2
C40	47		10%	15-47011	DI-47	DD-470	L10Q47	CNO-447	5GA-Q47S 10%*

CAPACITORS (cont)

ITEM No.	RATING			REPLACEMENT DATA					
	CAP.	VOLT	TOL	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C41	2000		10%	15-20211	DI-2000			JL-220	5HK-D2S 10% *
C42	20000			15-20317	BPD-02	DD-203	BYB6S2	B-120	5GA-S2
C43	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C44	.22	400		16-22448	P488N-22		CUB4P22	GEM-4022	4TM-P22
C45	20000			15-20316	BPD-02	DD-203	BYB6S2	B-120	5GA-S2
C46	20000			15-20316	BPD-02	DD-203	BYB6S2	B-120	5GA-S2
C47	.0033	1000		16-33268	P1088N-0033		CUB10D33	GEM-16233	MB-D33
C48	.0033	1000		16-33268	P1088N-0033		CUB10D33	GEM-16233	MB-D33
C49	820		10%	15-82111	DI-820			JL-382	5GA-T82S 10% *
C50	1000		10%	15-10211	DI-1000			J-210	5GA-D1S 10% *
C51	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C52	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C53	10000			15-10317	BPD-01	DD-103	BYA10S1	B-110	5HK-S1
C54	.047	600		20-647-1	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	24-315-0	BT-7417	A47F3-1meg	Q18-137X	UT440	Loudness, Tap @ 100K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	
R2A	2meg	½	24-172-2	B-75	A47-2meg-S	Q11-139	U56	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg	½	24-6-3	B-75	A47-2meg-S	Q11-139	U56	Compensation
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SILVERTONE PART No.	NOTES
	OHMS	WATT		
R4	2.2meg		60-22502	
R5	10Ω		60-10001	
R6	68K		60-68301	
R7	10K		60-10301	
R8	68Ω		60-68001	
R9	10Ω		60-10001	
R10	2.2meg		60-22501	
R11	100K		60-10401	
R12	33K	1	60-33311	
R13	15Ω		60-15001	
R14	18K		60-18301	
R15	2.2meg		60-22502	
R16	22K		60-22301	
R17	22K	1	60-22311	
R18	10K		60-10301	
R19	100K		60-10401	
R20	82K	1	60-82311	
R21	68Ω		60-68001	
R22	3900Ω		60-39201	
R23	100K		60-10401	
R24	150K		60-15401	Note 1
R25	2.2meg		60-22502	
R26	56K	1	60-56311	
R27	4700Ω		60-47201	
R28	68Ω		60-68001	
R29	15K		60-15301	
R30	470K		60-47401	
R31	470K		60-47401	
R32	5.6Ω		60-56901	

ITEM No.	RATING		SILVERTONE PART No.	NOTES
	OHMS	WATT		
R33	68Ω		60-68001	
R34	68K		60-68301	
R35	1.5meg		60-15501	
R36	8200Ω		60-82201	
R37	1meg		60-10501	
R38	270K		60-27401	
R39	2.2meg		60-22501	
R40	1000Ω		60-10201	
R41	10Ω		60-10001	
R42	2700Ω		60-27201	
R43	1meg		60-10501	
R44	47K		60-47301	
R45	1200Ω		60-12201	
R46	47K		60-47301	
R47	1Ω		60-10901	
R48	470K		60-47401	
R49	100Ω		60-10101	
R50	470K		60-47401	
R51	100Ω		60-10101	
R52	270Ω	2	60-27121	
R53	270Ω	2	60-27121	
R54	220K		60-22401	
R55	4700Ω		60-47201	
R56	470Ω		60-47101	
R57	8000Ω	15	61-136-0	
R58	900Ω	5	61-17-0	
R59	100K	1	60-10411	
R60	750Ω	10	61-128-0	
R61	1meg		60-105-01	

Note 1. Some versions may use 390K in this application (Part #60-39401).

PARTS LIST & DESCRIPTION (continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	10-144-1					
L2	Cathode Choke	10-129-1			4588		.55 Microhenry
L3	FM RF Coil	10-145-1					
L4	FM Osc. Coil	10-3-3					
L5	Loop Ant.	84-7119					
L6	RF Choke	10-129-1			4588		.55 Microhenry
L7	AM Osc. Coil	10-46-4					
L8	1st FM IF Trans.	10-44-2	16-3487	FM-254	1463		
L9	1st AM IF Trans.	10-101-2	16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF Trans.	10-44-2					
L11	2nd AM IF Trans.	10-45-2	16-6758	BC-353	12-C2	RF-2	
L12	Ratio Detector	10-15-0	17-3498	FM-255	1465		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.05A	600VCT @ .130A	5V @ 3A	80-23-0		P-2844			22R05	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 4A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5300Ω CT	6-8Ω	80-65-1	Z1011	A-2904 ①	AU-609	A-3870	24S55	S-55X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	12"	PM	7-8Ω	33-378-4	12A6AZ7.8	
SP2	4"	PM	4-5Ω	33-362-4	4A15TZ4.1	
SP3	4"	PM	4-5Ω	33-362-4	4A15TZ4.1	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SILVERTONE PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	33-304-0	13-TB ①				① Includes needles

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	
M2	57-5716 ① (LP) 57-5715 ① (78RPM)		† W-101STS ② or ♦ W-101STD ① or † W-102S ①	† Jewel ♦ Diamond ① Changers 528.56441, 528.56451 ② Includes cartridge

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Lamp	89-7	#47
M4	Lamp	89-7	#47
M5	Tuning Cap.	19-4-4	4 Gang (AM Sections: Ant. 5-420mmf, Osc. 9-135mmf)
M6	Switch	69-268-0	Function Selector (3 Position, Rotary Wafer Type)
M7	Switch	69-282-0	Monaural-Stereo, DPDT (Slide Type)
M8	Motor	59-72	Complete, Changer Ch. 528.56480
	Motor	59-89	Complete, Changer Ch. 528.56490

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52-1137-0	Tuning
Knob	52-1136-0	Indicating
Knob	52-1122-0	On-Off-Reject
Knob	52-917-0	Speed Control
Cabinet	42-81-3	Model 8055B
Cabinet	42-82-3	Model 8056B
Legs	49-418	4 used, Model 8055B
Legs	49-419	4 used, Model 8056B
Pointer	52-3-1	
Window	48-140-1	Dial Scale

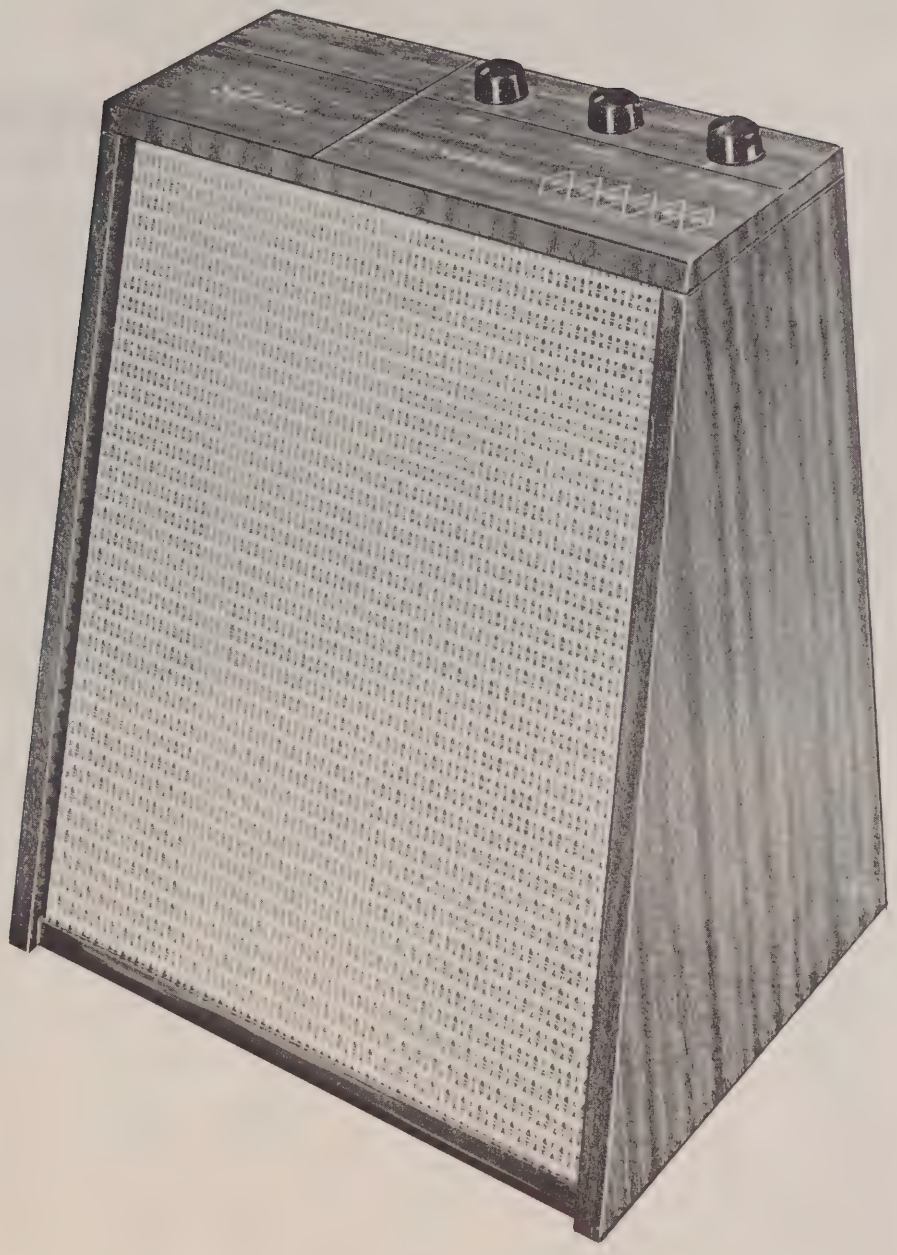
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

**SYLVANIA MODEL
SC03 (Ch. 1-609-7)**

SYLVANIA MODEL
SC03 (Ch. 1-609-7)



SYLVANIA MODEL
SC03 (Ch. 1-609-7)

TRADE NAME	Sylvania Model SC03 (Ch. 1-609-7)		
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St., Batavia, N. Y.		
TYPE SET	AC Operated 4 Tube Phono Amplifier		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	61 Watts, 159 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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SET 443 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. - Phase Inv.	12AX7	
V2	Output	6V6GT	
V3	Output	6V6GT	
V4	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	20	450	161-4021	AFH4-14	D0130	FP444	TMQ-12	TVL-4763	
B	20	450							
C	20	450							
D	20	450							
C2	10	25	161-1000	PRS25V10	BBR10-25	TT50X10	TD-10-25	TVA-1204	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	.047	400			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C4	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C5	.0033	600	10%				PM6D33	GEM-16233	6TM-D33S 10%*	
C6	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C7	.0033	600	10%				PM6D33	GEM-16233	6TM-D33S 10%*	
C8	2	50		169-0031						

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	152-0058	BT-175		Q13-139XX	UDT-296	Loudness, Tap @ 450K, 900K
B	Shaft			Not Req.		Not Req.	Not Req.	
C	Switch			KR-1		76-1	US-26	Power On-Off
D	Sw. Cover			KB-5				
R2A	1meg	½	153-0117	B-70	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1meg	½	153-0117	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

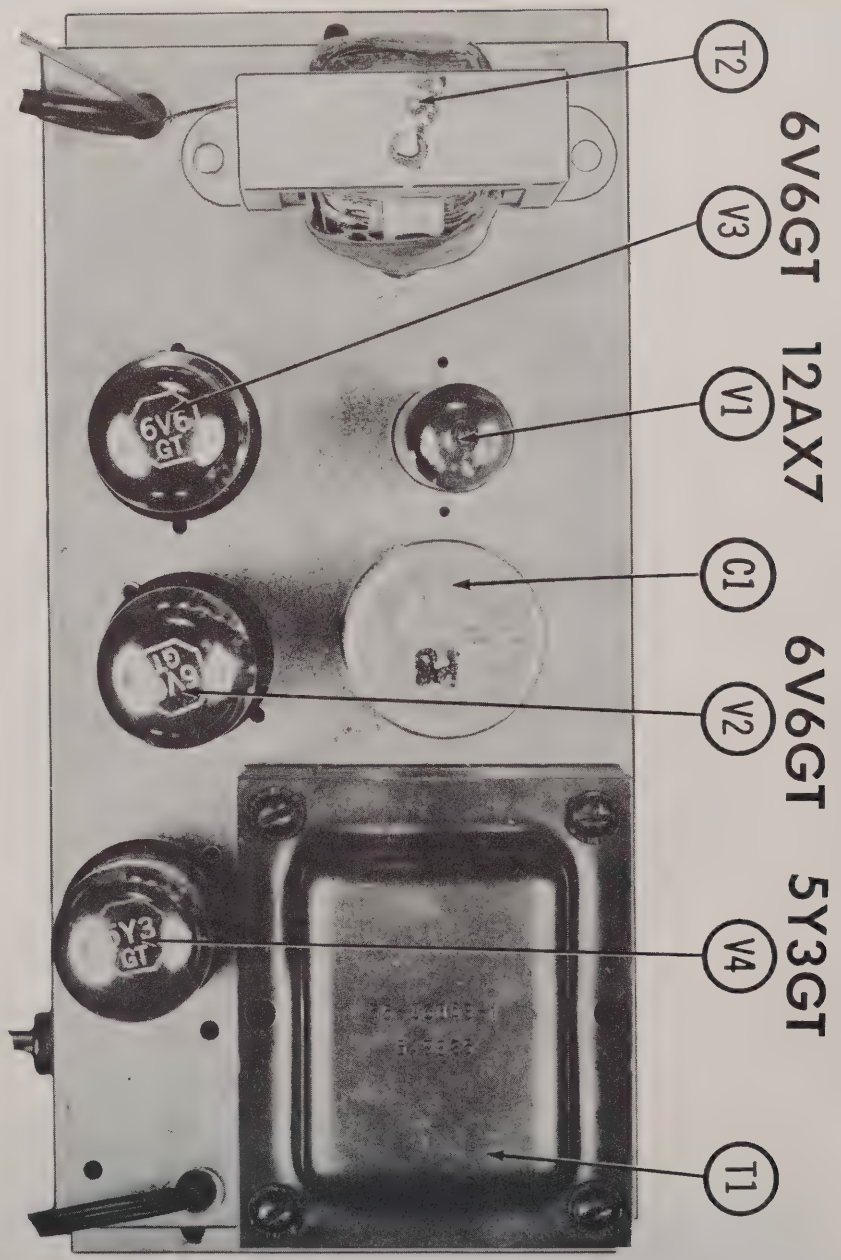
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R4	6.8meg			
R5	330K			
R6	1500Ω			
R7	39K			
R8	330K			
R9	390K			

ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R10	200Ω	5	187-0031	
R11	470K			
R12	68Ω	1		
R13	470Ω	1		
R14	100K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Tone Comp.	18mmf, 27mmf, 820mmf, 3300mmf, 4700mmf, 47K, 68K, 330K	190-0030	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .59A	585VCT @ .085A	5V @ 2A	141-0068	P9209	P3052		PM8405	22R04	R-12B
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.2A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	9100Ω CT	3-4Ω	143-0048	Z1011	A-3027	AU-609	A3870	26S59	S-55X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	539-0810	8A21	
SP2	4"	PM	9Ω	539-0433	4A1TZ9	

CABINETS & CABINET PARTS

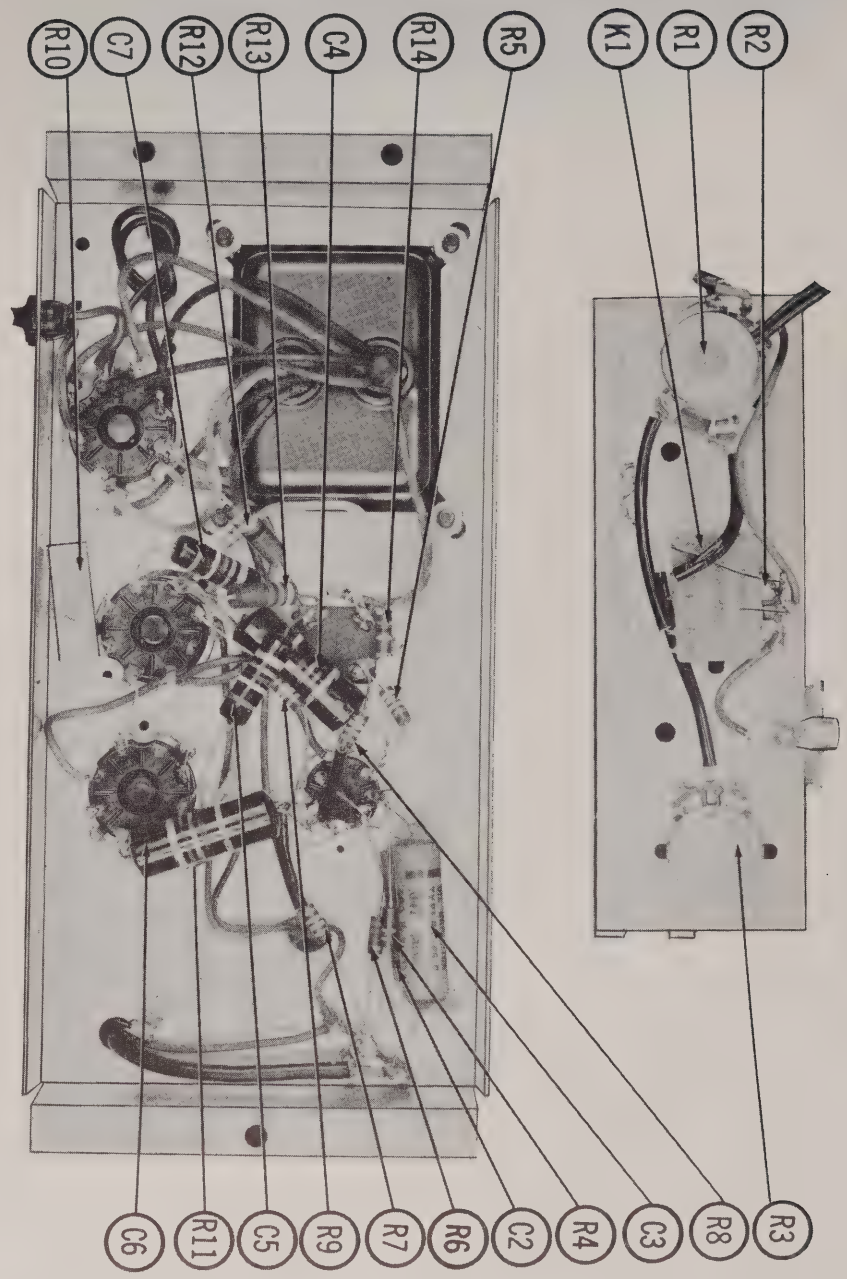
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

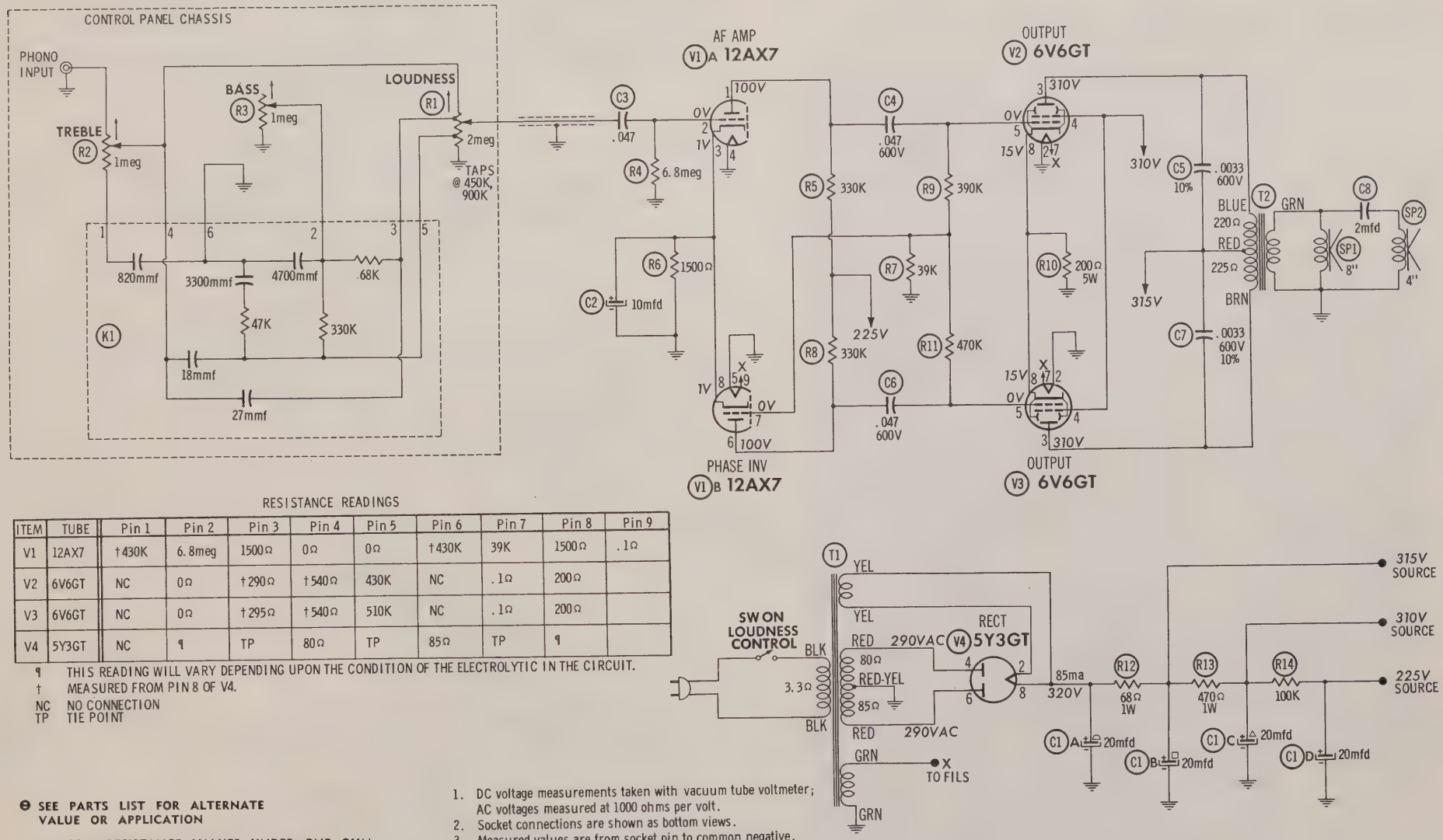
NAME	PART NO.	DESCRIPTION
Knob	740-0101	Volume-On-Off, Bass, Treble

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†430K	6.8meg	1500Ω	0Ω	0Ω	†430K	39K	1500Ω	.1Ω
V2	6V6GT	NC	0Ω	†290Ω	†540Ω	430K	NC	.1Ω	200Ω	
V3	6V6GT	NC	0Ω	†295Ω	†540Ω	510K	NC	.1Ω	200Ω	
V4	5Y3GT	NC	¶	TP	80Ω	TP	85Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V4.
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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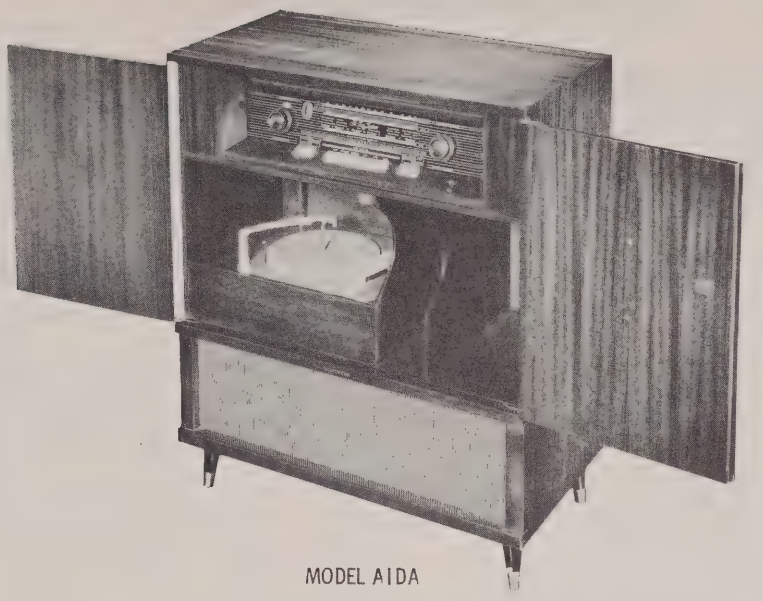
SYLVANIA MODEL SC03 (Ch. 1-609-7)

PHOTOFACT* Folder

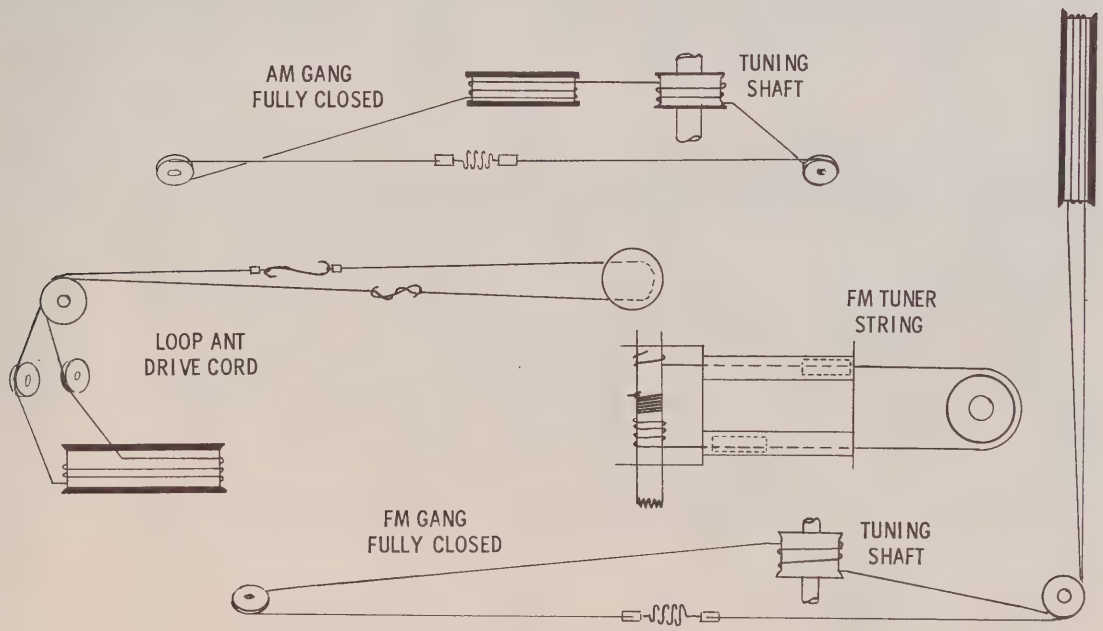


MODEL AIDA

TELEFUNKEN MODELS
Aida, Verdi

TRADE NAME	Telefunken Models Aida, Verdi
SUPPLIER	American Elite, Inc., 7 Park Ave., New York, N. Y.
TYPE SET	AC Operated 6 Tube FM-BC-SW-Special Receiver With 4 Speed Automatic Record Changer
POWER SUPPLY	110/125/150/220/240 Volts AC, 60 Cycles RATING 71 Watts, .61 Amp. @117 Volts AC (FM)
TUNING RANGE SPECIAL 145-345KC BROADCAST 515-1620KC	SHORT WAVE 5.95-18.2MC FREQ. MOD: 87.5-100MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE TELEFUNKEN TW560 - PHOTOFACT SET 371 FOLDER 12 OR RECORD CHANGER MANUAL RC-10.



DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H968

SET 443 FOLDER 14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested alignment tools: A5, A7, A10 and A12.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A16, A18 and A19..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd.	High side to pin 2 (grid) of ECH81 (V2). Low side to chassis.	460KC (400∿ Mod.)	AM	800KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	17.8MC	SW	17.8MC	"	A5	Set small pointer to zero on logging scale. Adjust for maximum output.
3.	"	"	7.2MC	"	7.2MC	"	A6	Adjust for maximum output. Repeat Step 2.
4.	"	"	1450KC	AM	1450KC	"	A7	Adjust for maximum output.
5.	"	"	600KC	"	600KC	"	A8	Adjust for maximum output. Repeat Step 4.
6.	"	"	200KC	Special	200KC	"	A9	Adjust for maximum output.

Set Antenna Control knob to "O" position (For external antenna).

7.	200mmf & 100Ω Carbon Resistor in series.	High side thru dummy to AM antenna socket. Low side to chassis.	17.8MC	SW	17.8MC	"	A10	Adjust for maximum output.
8.	"	"	7.2MC	"	7.2MC	"	A11	Adjust for maximum output. Repeat Step 7.
9.	"	"	1450KC	AM	1450KC	"	A12	Adjust for maximum deflection
10.	"	"	600KC	"	600KC	"	A13	Adjust for maximum deflection. Repeat Step 9.
11.	"	"	200KC	Special	200KC	"	A14	Adjust for maximum deflection.
12.	"	"	460KC	AM	800KC	"	A15	Adjust for MINIMUM deflection

FM RF ALIGNMENT

Steps 14 & 15 should not be performed unless absolutely necessary.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
13.	500mmf.	High side to ungrounded tube shield on ECC85 (V1). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A16, A17	Adjust for maximum deflection.
14.		Across FM antenna terminals.	94MC	"	94MC	"	A18, A19	"
15.		Across FM antenna terminals. (Increase output by 1000 to 1.)	"	"	"	"	A20	Remove plate voltage from ECC85 (V1) by disconnecting R2 (8200Ω). Adjust A20 for MINIMUM deflection. Reconnect R2.
16.		Across FM Antenna terminals.	"	"	"	"	A21	Adjust for maximum deflection

FM IF ALIGNMENT USING AM SIGNAL GENERATOR & VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
17.	500mmf.	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A22	Adjust for maximum deflection.
18.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A23	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
19.	"	"	"	"	"	DC probe to point Ⓐ. Common to chassis.	A24, A25	Adjust for maximum deflection.

ALIGNMENT INSTRUCTIONS (cont)

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
17.	500mmf.	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. amp. to point Ⓐ. Low side to chassis.	A22	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
18.	"	"	"	"	"	Vert. amp to point Ⓑ. Low side to chassis.	A23	Reconnect C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A22 for maximum amplitude and straightness of crossover lines.
19.	"	"	"	"	"	Vert. amp. to point Ⓐ. Low side to chassis.	A24, A25	Disconnect C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Reconnect C2.

FIG. 1

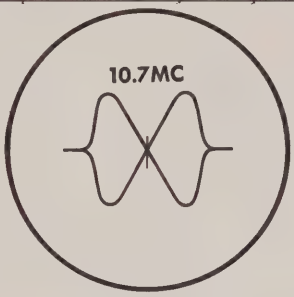
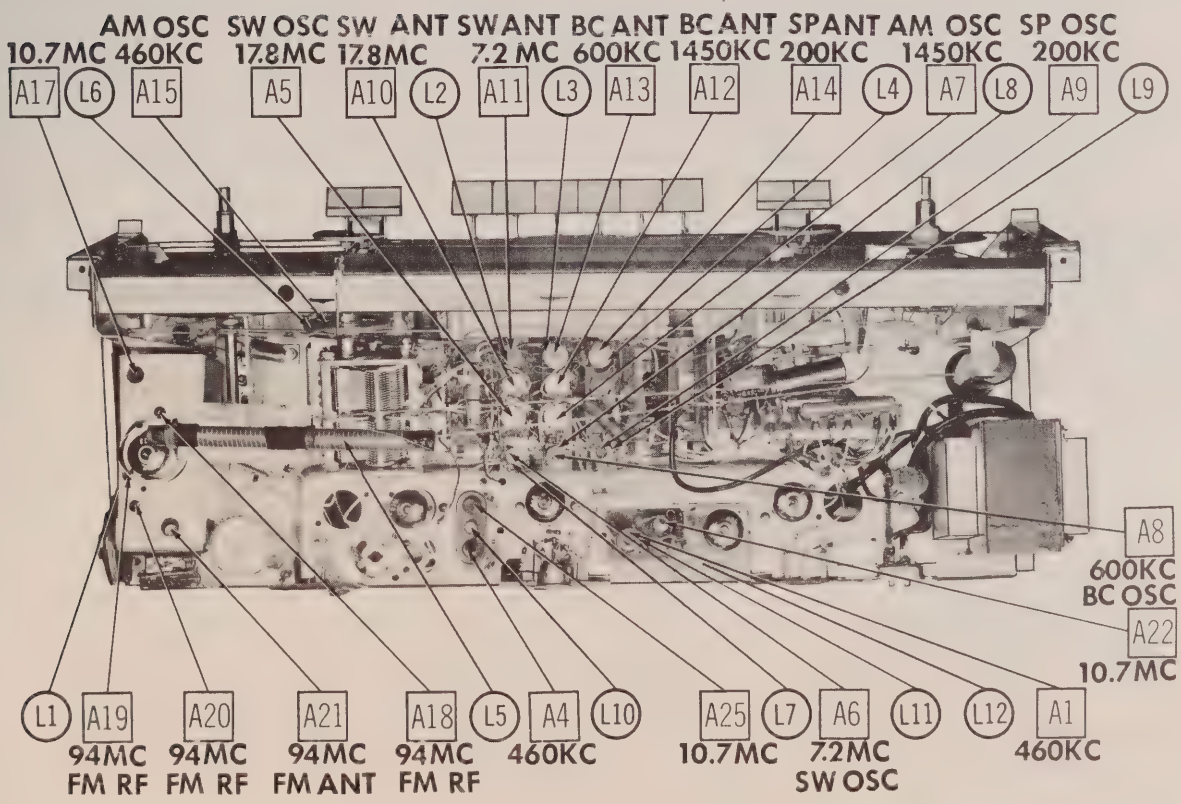
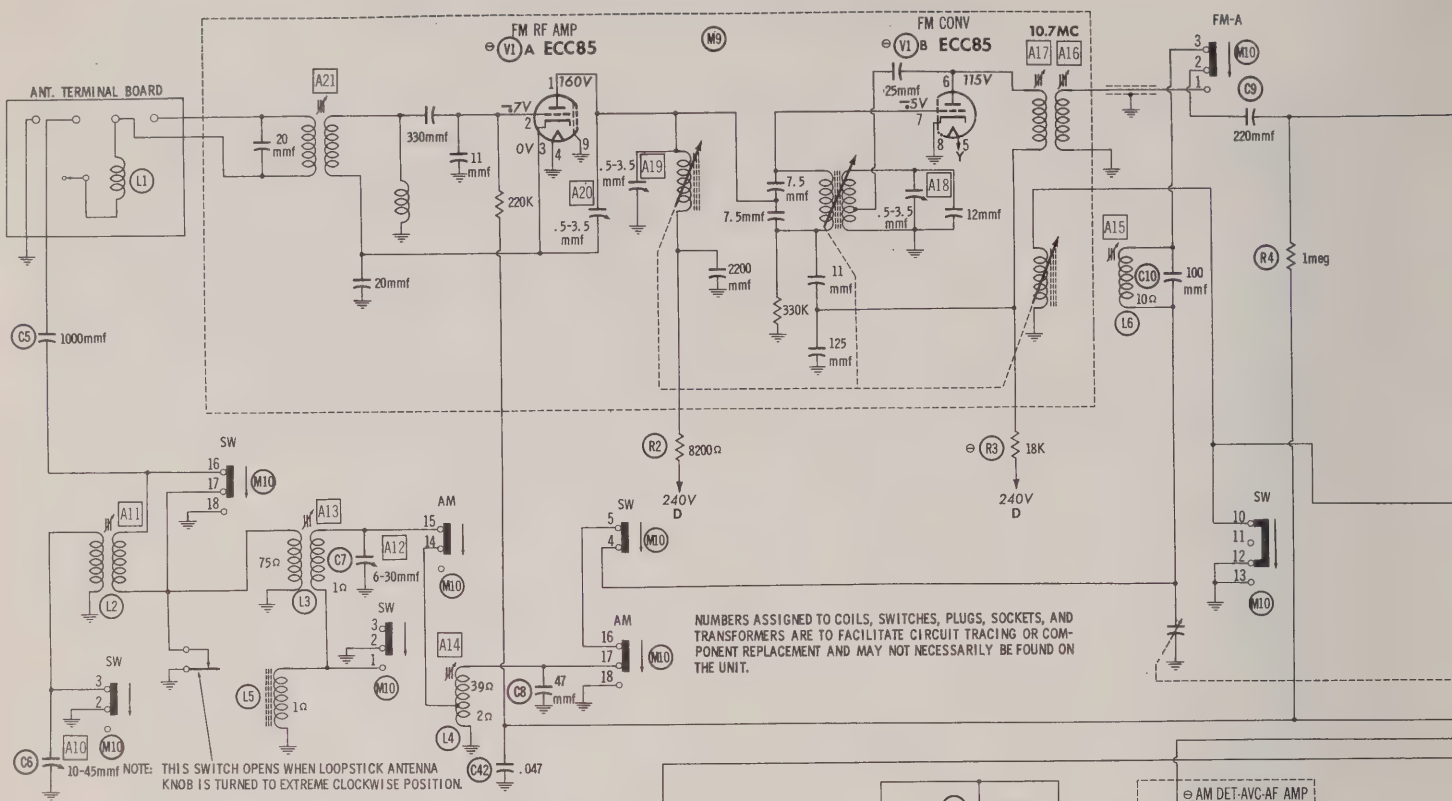


FIG. 2



CHASSIS TOP VIEW INDUCTOR & ALIGN. IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†9200Ω	2meg	.1Ω	0Ω	.2Ω	†19K	330K	0Ω	0Ω
V2	ECH81	†40K	2.8meg	0Ω	0Ω	.2Ω	†2500Ω	*33K 0Ω	†*34K	*33K 0Ω
V3	EF89	0Ω	220K *1.8meg	0Ω	.2Ω	0Ω	0Ω	†3200Ω	†100K	39K
V4	EABC80	INF	39K	INF	.2Ω	0Ω	220K	0Ω	10meg	†445K
V5	EM80	2.5meg *1.8meg	0Ω	NC	.2Ω	0Ω	NC	†470K	NC	†1000Ω
V6	EL84	870K	870K	250Ω	.2Ω	0Ω	NC	†670Ω	NC	†1000Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
* MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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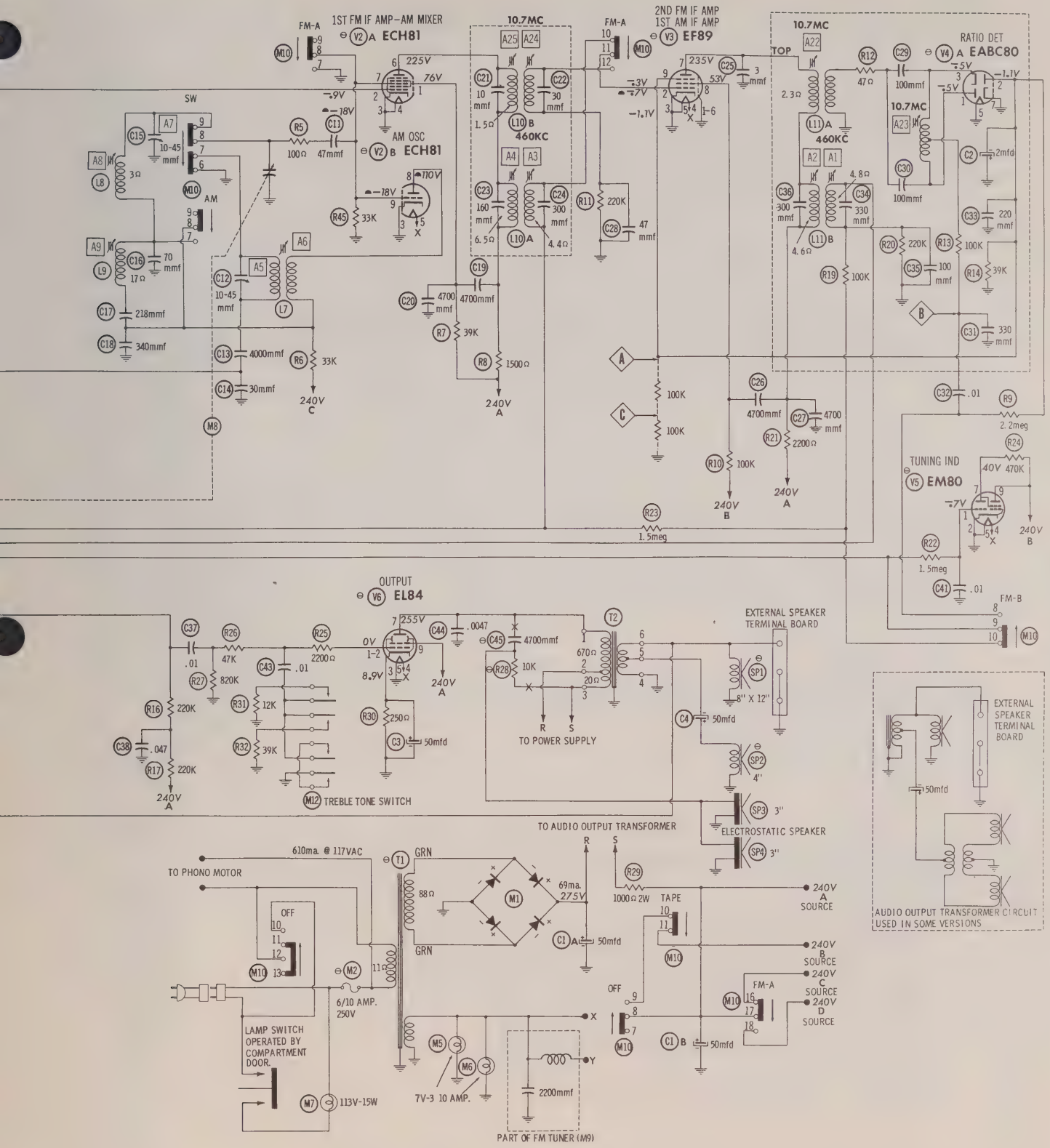
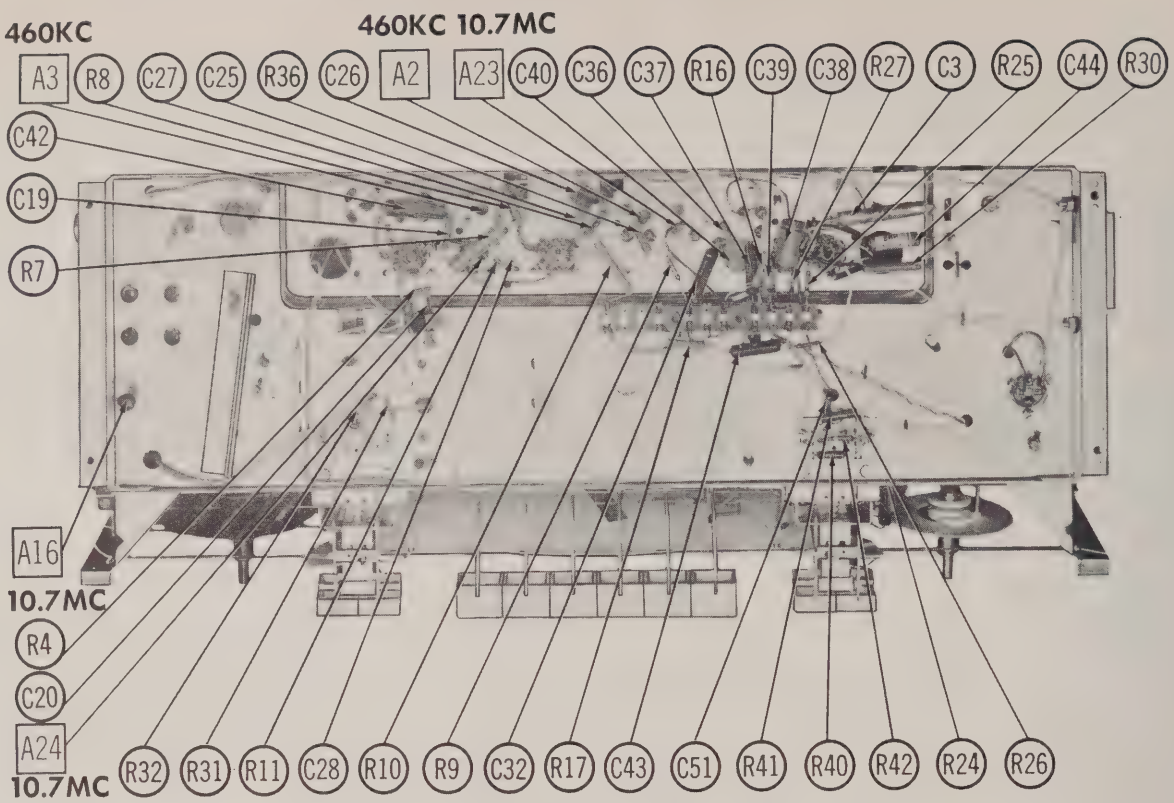
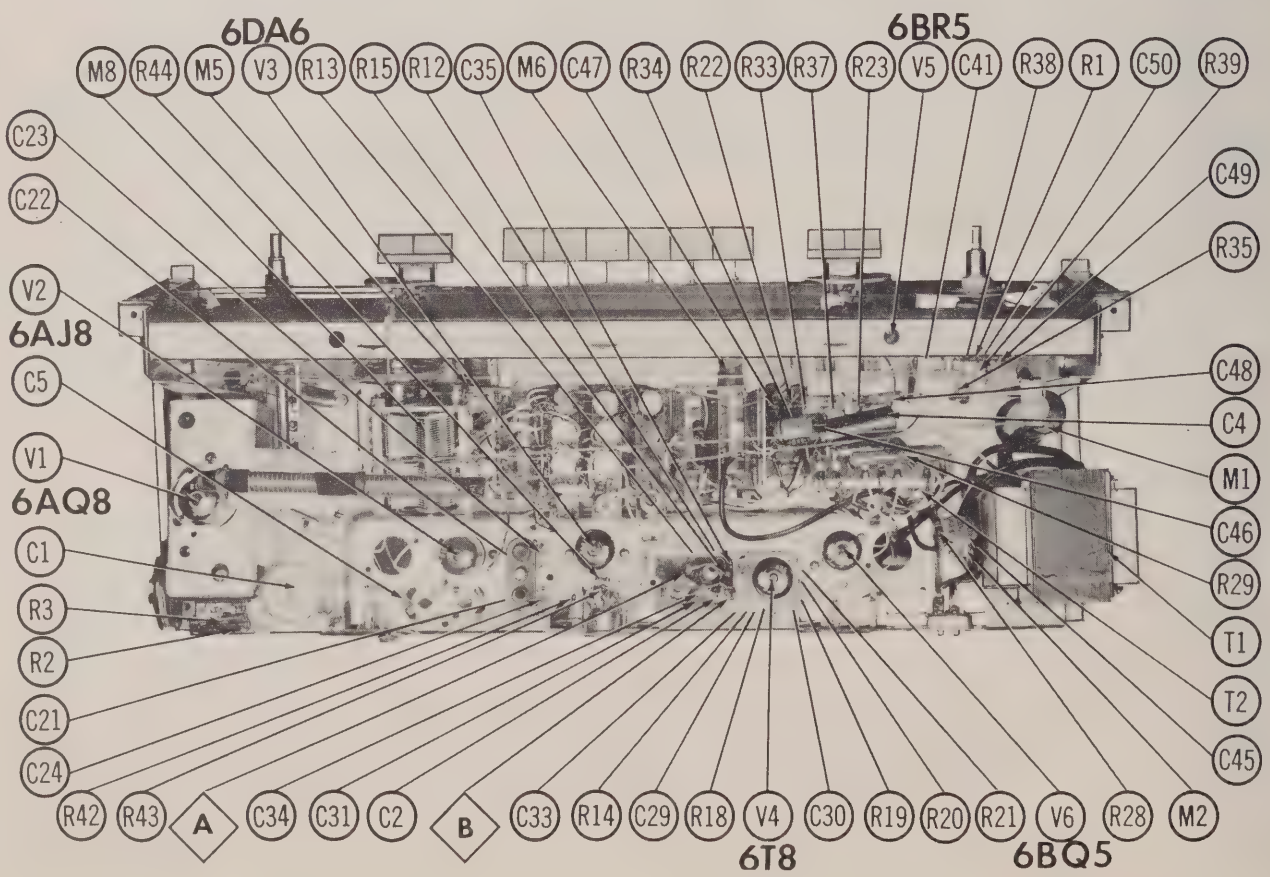


TELEFUNKEN MODELS
Aida, Verdi



CHASSIS BOTTOM VIEW



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85/6AQ8 ①
V2	1st FM IF Amp. -AM Mixer-AM Osc.	ECH81/6AJ8 ①
V3	2nd FM-1st AM IF Amp.	EF89/6DA6 ①
V4	Ratio Det. -AM Det. - AVC-AF Amp.	EABC80/6T8 ①
V5	Tuning Indicator	EM80/6BR5 ①
V6	Output	EL84/6BQ5 ①

① Domestic type listed may not be directly interchangeable in some instances.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Telefunken PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	385	8268338		BR5045			TVLS-2646*	
B	50	385			BR5045				
C2	2	80				TT150X2		TE-1401	
C3	50	15	8534076	PRS25V50	BBR50-25	TT15X50	ML50-15	TE-1160	
C4	50	4	8234080	SRE6V50	BBR50-6	TT6X50	ML50-6	TE-1100	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	Telefunken PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	1000				1467-001	D6-102	1W5D1	MC255	1FM-21	
C6	10-45									
C7	6-30									
C8	47				1468-000047	D6-470	5W5Q47	CNO-447	1FM-447	
C9	220				1468-00022	D6-221	5W5T22	B-322	1FM-322	
C10	100				1468-0001	D6-101	5W5T1	MC235	1FM-31	
C11	47				1468-000047	D6-470	5W5Q47	CNO-447	1FM-447	
C12	10-45									
C13	4000				1467-004	DD-402	1W5D4	MC-463	1FM-24	
C14	30				SI 30	DD-300	L10Q3		5GA-Q3	
C15	10-45									
C16	70				1469-00007		5W5Q7		1FM-470S*	
C17	218					DD-221			1FM-318S*	
C18	340								1FM-340S*	
C19	4700				SI 4700	D6-472	LT6D47	B-247	5GA-D47	
C20	4700				1467-0047	D6-472	1W5D47	B-247	1FM-247	
C21	10				SI 10	D6-100	L10Q1	B-410	5GA-Q1	
C22	30				SI 30	DD-300	L10Q3		5GA-Q3	
C23	160								5GA-T16S*	
C24	300				SI 300	D6-301	L10T3		5GA-T3S*	
C25	3					D6-030	C10V3C		5TCCB-V3S*	
C26	4700				1467-0047	D6-472	1W5D47	B-247	1FM-247	
C27	4700				1467-0047	D6-472	1W5D47	B-247	1FM-247	
C28	47				1468-000047	D6-470	5W5Q47	CNO-447	1FM-447	
C29	100				SI 100	D6-101	LT6T1	B-310	5GA-T1	
C30	100				SI 100	D6-101	LT6T1	B-310	5GA-T1	
C31	330				1468-00033	D6-331	5W5T33	B-333	1FM-333	
C32	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C33	220				DI 220	DD-221	L10T22	B-322	B-322	
C34	330				1468-00033	D6-331	5W5T33	B-333	1FM-333	
C35	100				1468-0001	D6-101	5W5T1	MC-235	1FM-31	
C36	300				1468-0003	D6-301	5W5T3	MC-241	1FM-33	
C37	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C38	.047	125			P288N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C39	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C40	4700				BPD-0047	DD-472	BYA10D47M	B-247	5GA-D47	
C41	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C42	.047	500			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C43	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C44	.0047	500			P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	Telefunken PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C45	4700				BPD-0047	DD-472	BYA10D47M	B-247	5GA-D47	Note 1
C46	.15	125			P288N-15		CUB2P15	GEM-2015	2TM-P15	
C47	.0022	125			P288N-0022	D6-222	CUB6D22	GEM-6222	6TM-D22	
C48	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C49	.0068	200			P288N-0068	D6-682	CUB6D68	GEM-6268	6TM-D68	
C50	16				1468-000018	D6-150	5W5Q15		1FM-415	
C51	330				1468-00033	D6-331	5W5T33	B-333	1FM-330	
C52	.01	125			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Telefunken PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1.3meg	½	83-452-39				UT438	Loudness, Tap ⓐ 300K

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Telefunken PART No.	NOTES
R2	8200Ω			Note 1
R3	18K			
R4	1meg			
R5	100Ω			
R6	33K			
R7	39K			
R8	1500Ω			
R9	2.2meg			
R10	100K			
R11	220K			
R12	47Ω			
R13	100K			
R14	39K			
R15	4700Ω			
R16	220K			
R17	220K			
R18	10meg			
R19	100K			
R20	220K			
R21	2200Ω			
R22	1.5meg			
R23	1.5meg			

ITEM No.	RATING OHMS	RATING WATT	Telefunken PART No.	NOTES
R24	470K			
R25	2200Ω			
R26	47K			
R27	820K			
R28	10K			Note 2
R29	1000Ω	2		
R30	250Ω			
R31	12K			
R32	39K			
R33	12K			
R34	2200Ω			
R35	270Ω			
R36	2200Ω			
R37	820Ω			
R38	47K			
R39	1.2meg			
R40	10meg			
R41	3.9meg			
R42	2.2meg			
R43	47K			
R44	47K			
R45	33K			

Note 1. Some versions may use 33K in this application.
Note 2. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	Telefunken PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .61A	240V ⓐ .070A	6.3V ⓐ 2.1A	41-5112.65①						

① Alternate Part #9037581

TELEFUNKEN MODELS
Aida, Verdi

PARTS LIST & DESCRIPTION (continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: Telefunken PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8000Ω Tap ⓐ 500Ω	3-4Ω Tap ⓐ 1-2Ω	9037081							

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: Telefunken PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	8"x12"	PM	3-4Ω	P2031①		① Alternate Part #9044416
SP2	4"	PM	3-4Ω	5711-2②		② Alternate Part #8213653
SP3	3"	Electrostatic				
SP4	3"	Electrostatic				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Telefunken PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil						
L2	SW Ant. Trans.	9037574					
L3	BC Ant. Trans.	9037575					
L4	SP Ant. Coil	9037576					
L5	Loopstick	9037103					
L6	IF Trap Coil	9037577					
L7	SW Osc. Coil	9037578					
L8	BC Osc. Coil	9037579					
L9	SP Osc. Coil	9037580					
L10A	1st AM IF	9044346					
B	2nd FM IF						
L11A	Ratio Detector	9049358					
B	2nd AM IF						
L12	Fil. Choke						

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: Telefunken PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.069A	8246053①			60-9150 ① ③	D-64 ②	① Selenium ② Silicon Use 12Ω minimum series resistor ③ 2 Used

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Telefunken PART No. FUSE	Telefunken PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2		0.6A 250V	8248265 ①					

① Part #8248282 (.3A 250V) used with 220 VAC source.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: Telefunken PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M3		89-TB*				* Includes needle & mounting mechanism

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA: Telefunken PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M4		† S-61 or †♦ S-61SD or ♦ S-61D	† W-77TPS or †♦ W-77DS or ♦ W-77TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Telefunken PART No.	NOTES
M5	Lamp	8269336	7V, 0.3A
M6	Lamp	8269336	7V, 0.3A
M7	Lamp		113V, 15W
M8	Tuning Cap.	8236044	AM, 2 Gang
M9	FM Tuner	9049797	
M10	Function Switch	9046608	Press-Block
M11	Tone Switch	8116282	Bass
M12	Tone Switch	8116281	Treble

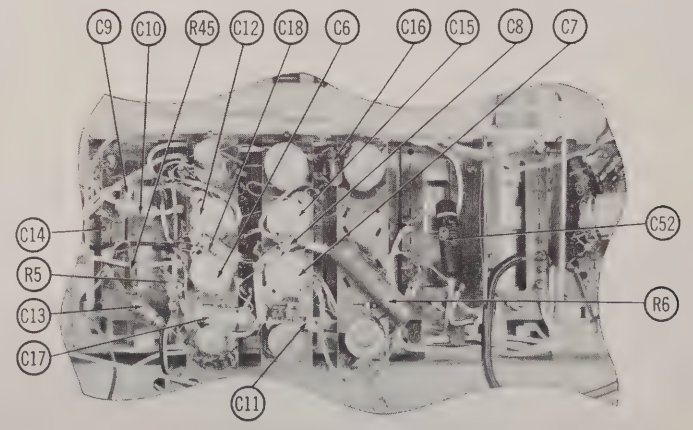
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8214605	Large, 2 Used
Knob	8214604	Small, 2 Used
Press Button	8269415	6 Used
Pointer	9031488	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)



RF ASSEMBLY

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TRUETONE MODEL DC5987A

TRUETONE
MODEL DC5987A

TRADE NAME	Truetone Model DC5987A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated AM Receiver With 4 Speed Automatic Record Changer
TUBES	Six
POWER SUPPLY	110 - 125 Volts AC, 60 Cycles RATING 26 Watts, .285 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 - 1650KC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #550-102 - SEE V-M 1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1, A2, A3, A4..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8282, 8728, 8987, 8988
WALSCO #2515, 2531, 2532

A5, A6, A7..... GENERAL CEMENT #5000, 5003, 5004, 5008, 5009, 8276, 8290
WALSCO #2515, 2520, 2523, 2525, 2537

A8..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		High side to RF stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.		"	1650KC	"	"	A5	"
3.		Loop	1500KC	Tune to 1500KC signal	"	A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	600KC	600KC	"	A8	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H916

SET 443 FOLDER 15

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	

ITEM No.	USE	TYPE	NOTES
V4	Det. -AVC-AF Amp.	12AV6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	100	150	150-142	PRS150V8040	BBRD0183.7		TDLD-14	TVA-2462	
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	200				1468-0002	D6-201	5W5T2	MC237	1FM-32	①
C3	.05	200		152-104	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C4	.1	200		152-122	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C5	.1	200		152-122	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C6	.1	200		152-122	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C7	10000			158-102	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	②
C8	200				1468-0002	D6-201	5W5T2	MC237	1FM-32	①
C9	.1	200		152-122	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	④
C10	10000			158-102	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C11	.05	400		152-109	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C12	.022	400		152-102	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C13	.05	400		152-109	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C14	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	③

① Some versions may use 220mmf (Part #156-111).
② Some versions may use .022mfd (Part #152-102).
③ Some versions may use .05mfd (Part #152-109).
④ Some versions may use .002mfd

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg	½	120-137				PP46T26	Loudness, Tap ⓐ 2meg
B	Switch						Not Req.	Power, Push Type
R2A	100K	½	120-139	B-41	A47-100K-Z	Q13-128	U39	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	Shaft
R3A	7500Ω	½	120-140					Treble
B	Switch							Slide Type

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R4	2.2meg		180-107	
R5	10K		180-190	
R6	330Ω		180-117	
R7	22K			
R8	220Ω		180-148	
R9	330K		180-109	
R10	2.2meg		180-107	
R11	680Ω 5%		180-140	
R12	120Ω		180-130	

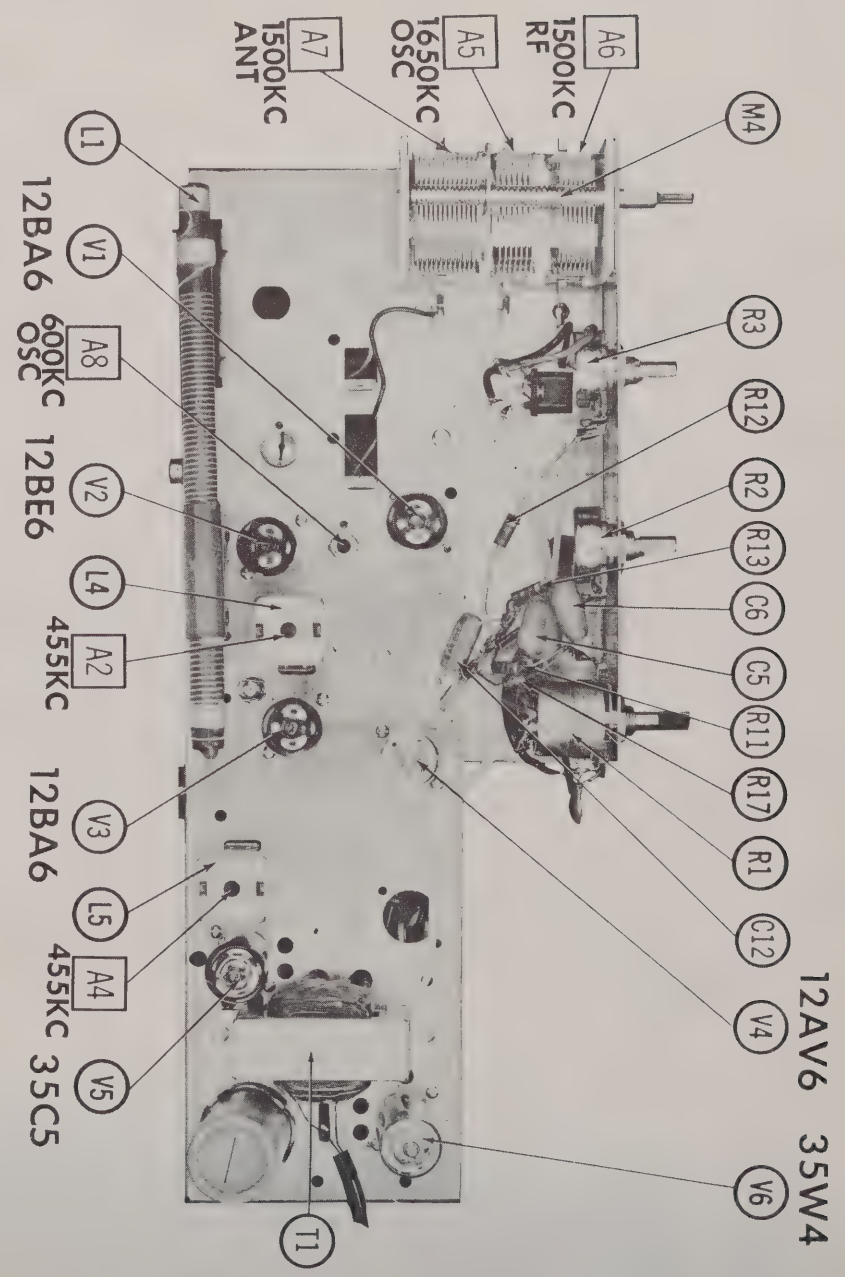
ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R13	1800Ω		180-159	
R14	6.8meg		180-135	
R15	470K		180-110	
R16	470K		180-110	
R17	15K		180-115	
R18	150Ω		180-111	
R19	1000Ω	1	180-184	
R20	82Ω			Note 1

Note 1. Not used in some versions.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	175-139	6A21	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	132-140					
L2	RF Coil	132-139					
L3	Osc. Coil	136-141	14-1073				
L4	Input IF	130-114	16-6758	BC-352	12-C1	RF-1	
L5	Output IF	130-114	16-6758	BC-353	12-C2	RF-2	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2650Ω	216Ω	138-131							
	Tap @ 200Ω	SEC 2 3-4Ω								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K1	Diode RF Filter	100mmf, 100mmf, 47K		Aerovox Centralab Cornell-Dubilier Sprague	PA-97-1 PC-50 111TM1 D-1

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	TRUETONE PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	600-201	81-T				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	TRUETONE PART No.	JENSEN PART No.	WALCO PART No.	
M2				

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Lamp	140-116	#47
M4	Tuning Cap.	160-130	3 Gang, Ant. 19-365mmf, RF 8-193mmf, Osc. 7-89mmf

CABINETS & CABINET PARTS

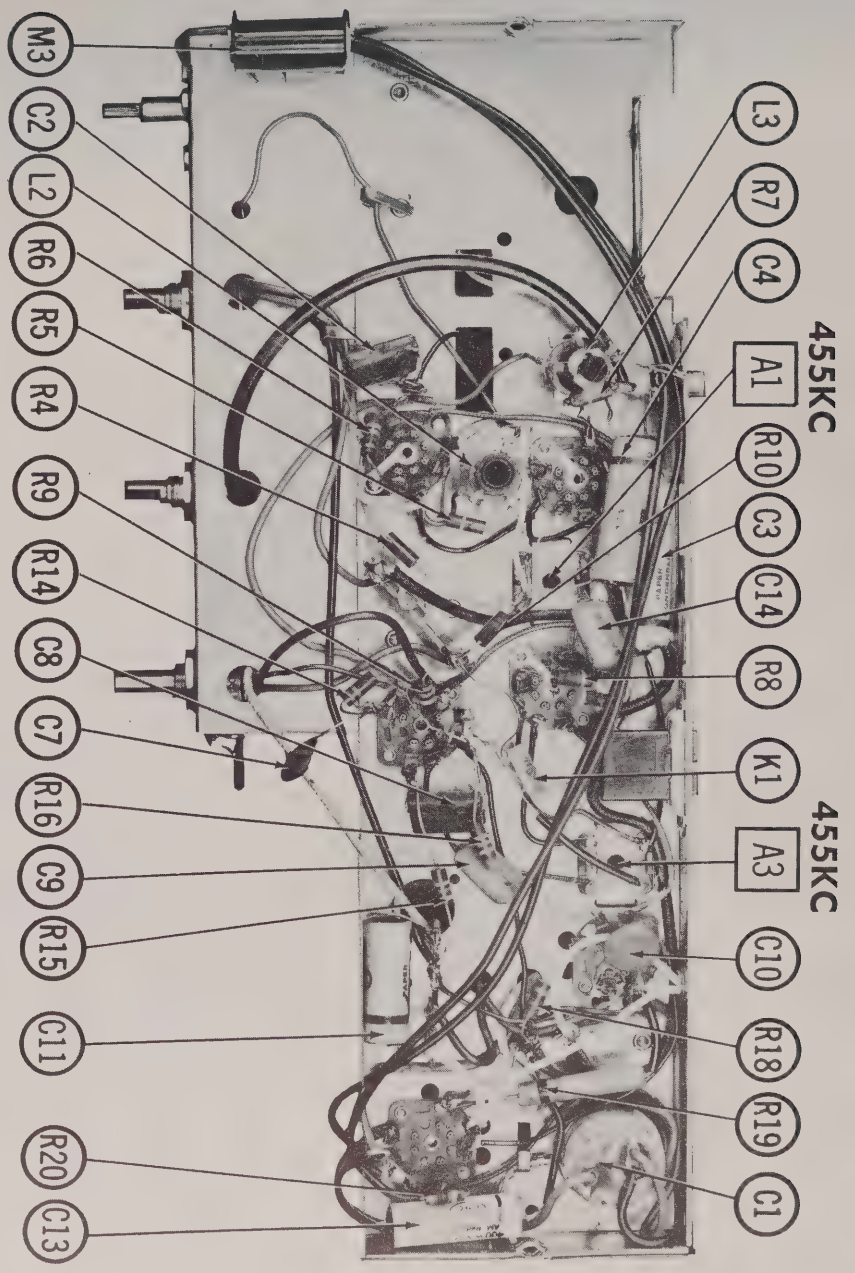
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

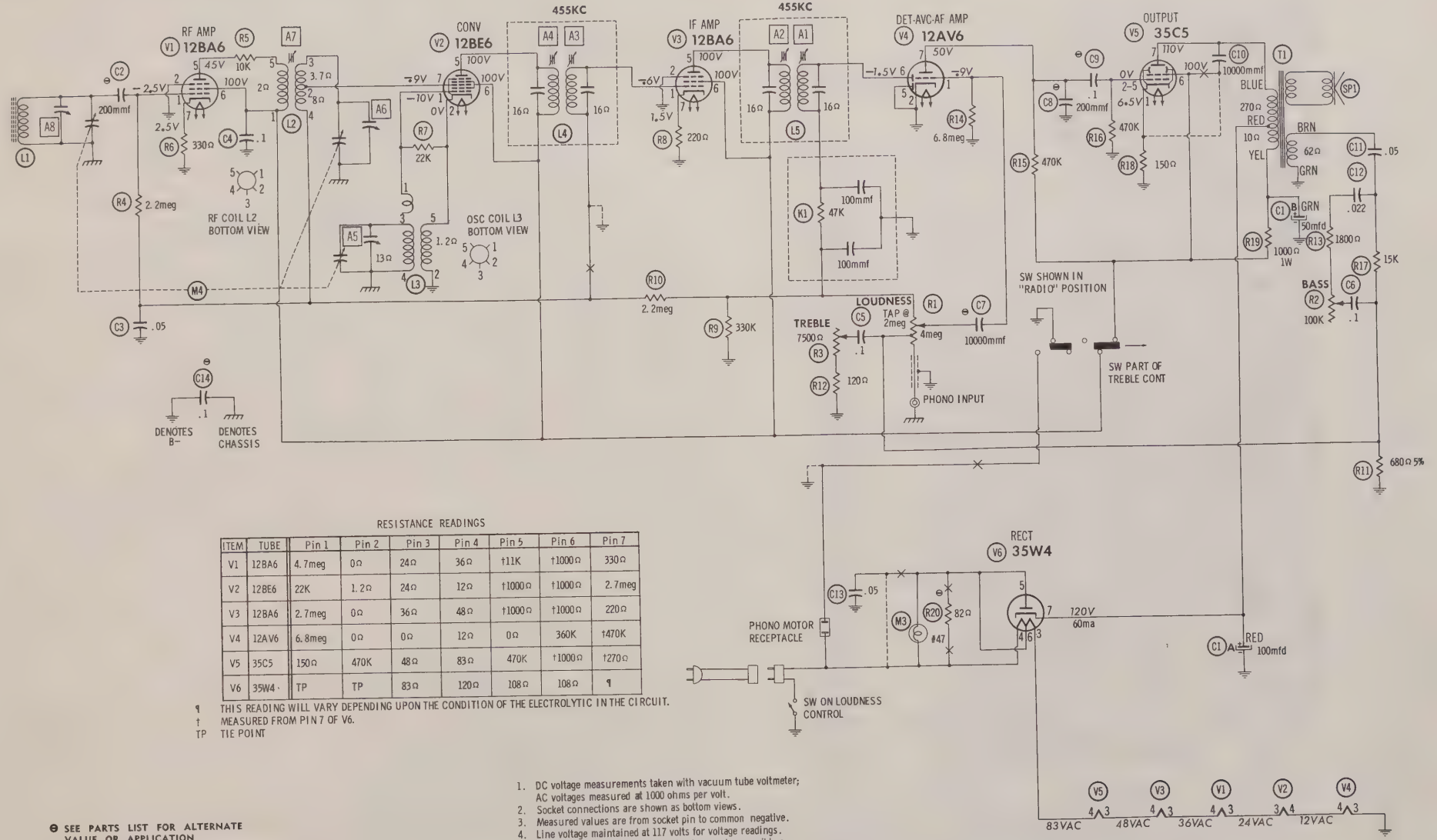
NAME	PART NO.	DESCRIPTION
Knob	220-160	Tuning
Knob	220-158	Volume-On-Off, Bass, Treble
Tuning Disc	220-159	Calibrated
Cabinet	500-110	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	4.7meg	0Ω	24Ω	36Ω	†11K	†1000Ω	330Ω
V2	12BE6	22K	1.2Ω	24Ω	12Ω	†1000Ω	†1000Ω	2.7meg
V3	12BA6	2.7meg	0Ω	36Ω	48Ω	†1000Ω	†1000Ω	220Ω
V4	12AV6	6.8meg	0Ω	0Ω	12Ω	0Ω	360K	†470K
V5	35C5	150Ω	470K	48Ω	83Ω	470K	†1000Ω	†270Ω
V6	35W4	TP	TP	83Ω	120Ω	108Ω	108Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V6.
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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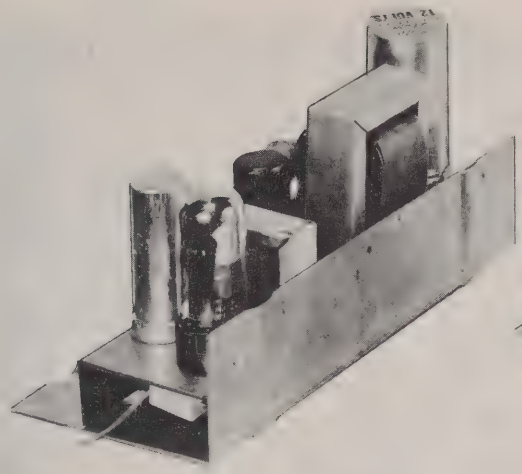
TRUETONE MODEL DC5987A

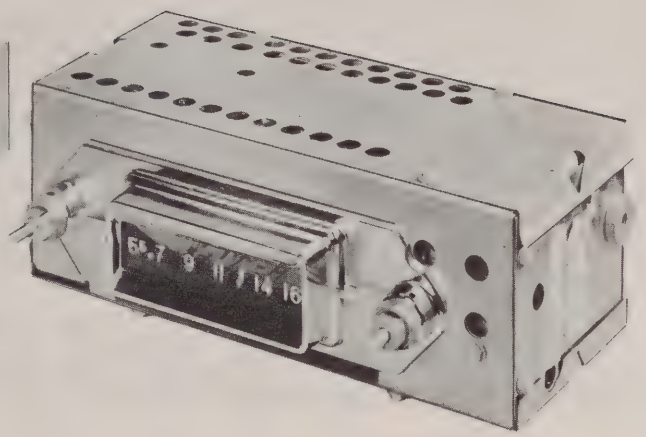
PHOTOFACT* Folder with CIRCUITRACE*

EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

VAUXHALL
MODEL 988946

VAUXHALL
MODEL 988946





TRADE NAME	Vauxhall Model 988946 (For 1958 Vauxhall Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated 6 Tube Custom Built AM Automobile Receiver
POWER SUPPLY	12 Volt Storage Battery
RATING	2.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 - 1600KC

VAUXHALL
MODEL 988946

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Set tone control to treble position.
Suggested alignment tools:
A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A5, A9, A10..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A6, A7, A8..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
Walsco #2512, 2515, 2522, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	0.1mfd.	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400∿ Mod.)	High Freq. end of dial	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
	Check setting of osc. coil core, (A8). Rear of core should be 1 5/8" from mounting end of coil form.						
2.	68mmf.	High side thru the 68mmf to antenna receptacle. Low side to chassis.	1615KC	High Freq. end of dial	Across voice coil	A5, A6, A7	Adjust for maximum output.
3.	"	"	600KC	Tune to 600KC signal	"	A9, A10	"
4.	"	"	1615KC	High Freq. end of dial	"	A6, A7	"
5.	"	"	1100KC	Tune to 1100KC signal	"		Adjust pointer on dial cord to coincide with 1100KC mark on dial.
	With radio installed in car and antenna fully extended, tune in a weak station near 750KC and adjust A7 for maximum output.						

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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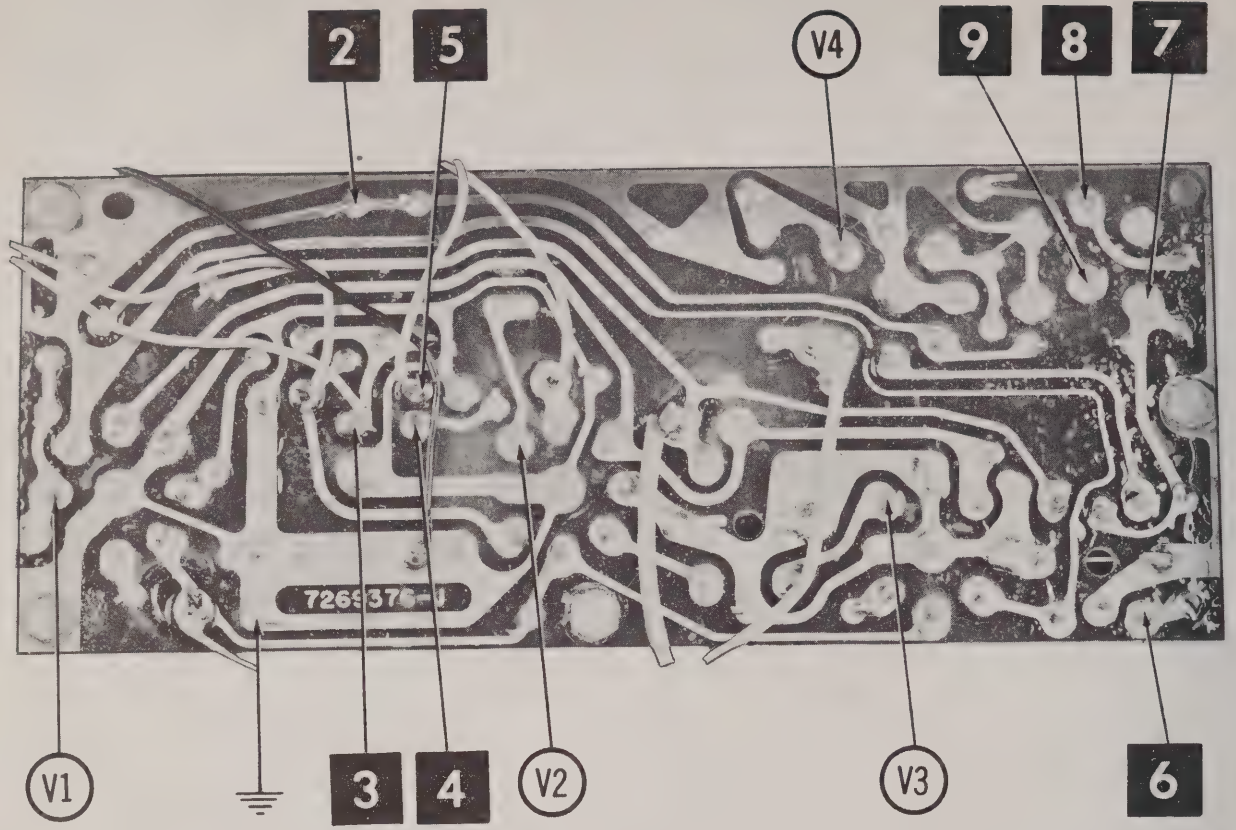
H979

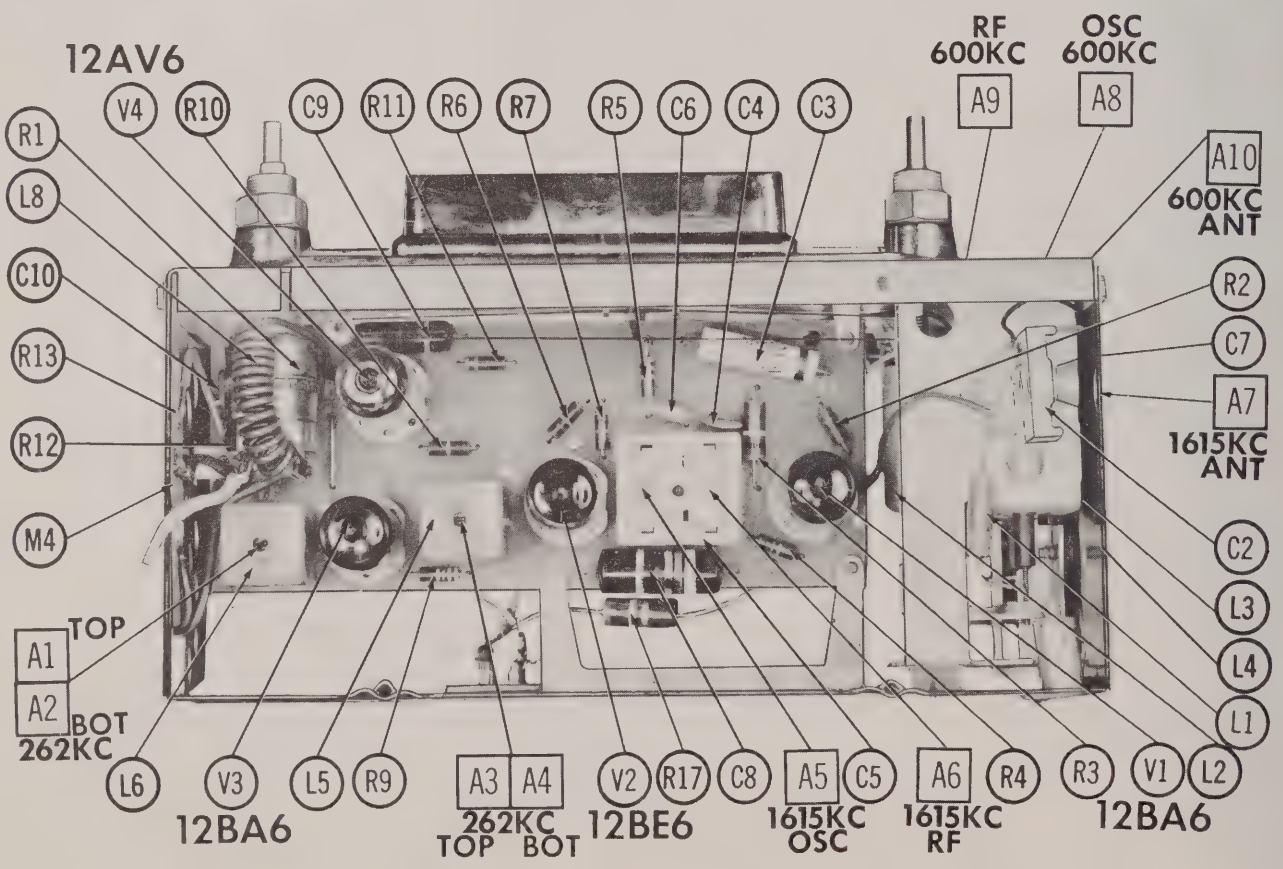
SET 443 FOLDER 16



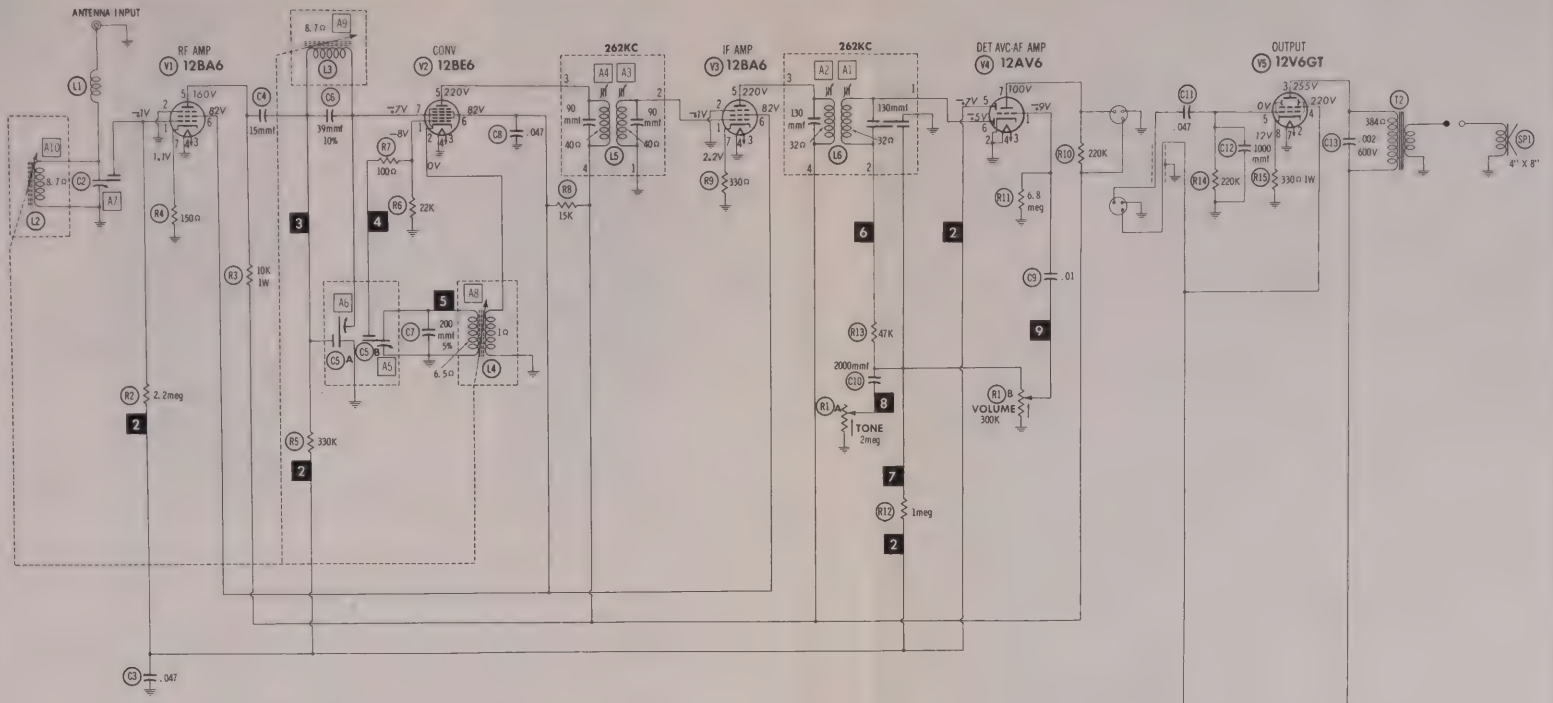
A Howard W. Sams CIRCUITRACE* Photo

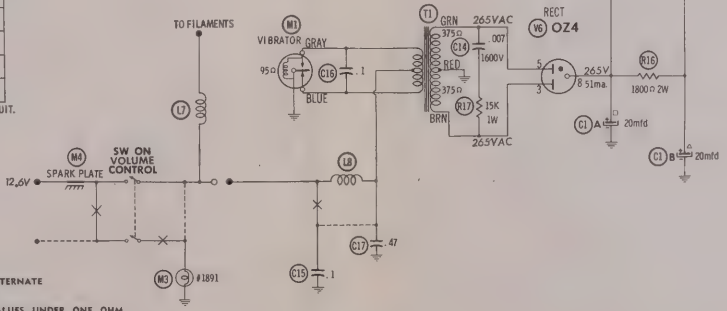
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHASSIS TOP VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BA6	3.5meg	0Ω	3.2Ω	0Ω	†12K	†17K	150Ω	
V2	12BE6	22K	1Ω	3.2Ω	0Ω	†1800Ω	†17K	1.6meg	
V3	12BA6	40Ω	0Ω	3.2Ω	0Ω	†1800Ω	†17K	330Ω	
V4	12AV6	6.8meg	0Ω	3.2Ω	0Ω	1.3meg	350K	†220K	
V5	12V6GT	TP	3.2Ω	†384Ω	†1800Ω	220K	TP	0Ω	330Ω
V6	OZ4	0Ω	TP	375Ω	TP	375Ω	NC	NC	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V6.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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VAUXHALL MODEL 988946

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12AV6	
V5	Output	12V6GT	
V6	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■20	400	6309	AFH2-51	B0400	FP234	TMD-50	TVL-2755	
B	▲20	400							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2				7270434						
C3	.047	200		6612	P288N-047	DF-503	CUB4S47	GEM-4147	2TM-S47	
C4	15			6361	BPD-000015	DD-150	L10Q15	CNO-415	5GA-Q15	
C5A				7268828						
B										
C6	39		10%	6366	DI-39	DD-390	L10Q39	CNO-439	5TCC-Q39	
C7	200		5%	7270129	1469-0002	TCZ-200	22R5T2	MCE237	MS-32	
C8	.047	400		6612	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C9	.01	200		6610	P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C10	2000			6352	BPD-002	DD-202	L10D2	B-220	5GA-D2	
C11	.047	400		6812	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C12	1000			6350	BPD-001	DD-102	L10D1	B-210	5GA-D1	
C13	.002	600		6628	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C14	.007	1600		6567	P1688N-007	D6-702	CUB16D7	GEM-1627	MB-D7	
C15	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C16	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C17	.47	100		6692	P288N-47		CUB2P47	GEM-2047	2TM-P47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg		1221113					Tone Volume
B	300K							
C	Switch							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DELCO PART No.	NOTES
	OHMS	WATT		
R2	2.2meg		1239	
R3	10K	1	1174	
R4	150Ω		1115	
R5	330K		1229	
R6	22K		1215	
R7	100Ω		1113	
R8	15K		1277	
R9	330Ω		1119	

ITEM No.	RATING		DELCO PART No.	NOTES
	OHMS	WATT		
R10	220K		1227	
R11	6.8meg		1245	
R12	1meg		1235	
R13	47K		1219	
R14	220K		1227	
R15	330Ω	1	1156	
R16	1800Ω	2	1204	Note 1
R17	15K	1	1253	

Note 1. Mfgr. recommends replacing with 2700Ω 2W and 5600Ω 1W in parallel.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DELCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	7255738	19-1004	BC-565	4610		6.5 Microhenries
L2	Ant. Coil	1221138					
L3	RF Coil	1221148					
L4	Osc. Coil	1221150					
L5	Input IF	1220990	16-6756	BC-344	13-PH1		
L6	Output IF	1220992		BC-346	13-PH6		
L7	Fil. Choke	1217846					1.4 Microhenries
L8	"A" Lead Choke	1221077					42 Microhenries

TRANSFORMER (VIBRATOR)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12VCT @1.8A	530 VCT @.051A		7265604		P-2860①		P6497	22R79①	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6000Ω	3-4Ω	6062	Z1002 ①	A-3019①		A-4431 ①	26S49 ①	S-5Z ①	① Use original Channel Frame

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	4"x8"	PM	3-4Ω	7272560	48A2	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12V	115∿	8555	6330	1602/883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		7½A 32V	455640	153-C				

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Lamp		#1891
M4	Spark Plate	7271564	

CABINETS & CABINET PARTS

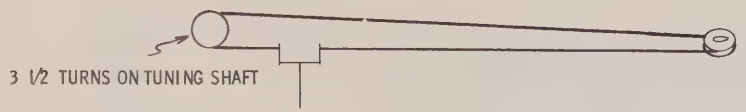
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1990864	Tuning, Volume-On-Off
Knob	7263890	Tone
Knob	7263886	Dummy
Pointer Ass'y.	7270447	

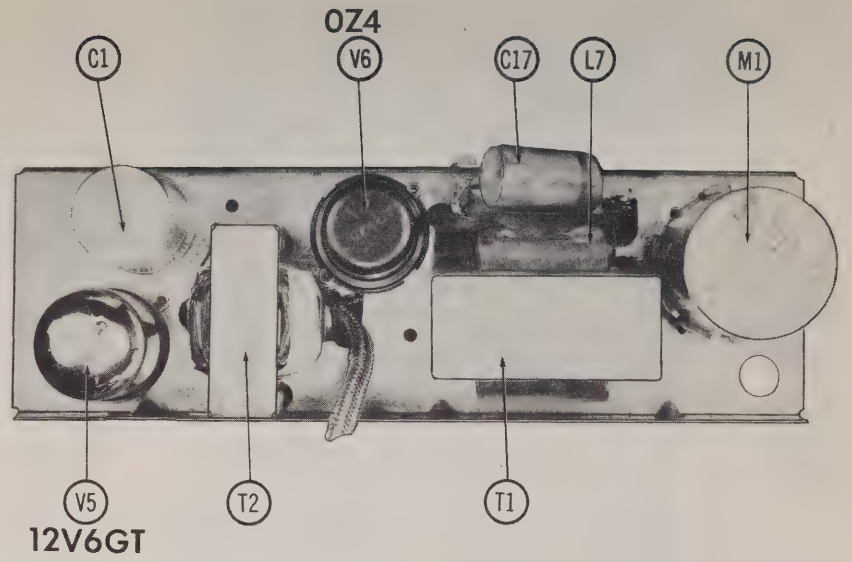
WIRING DATA

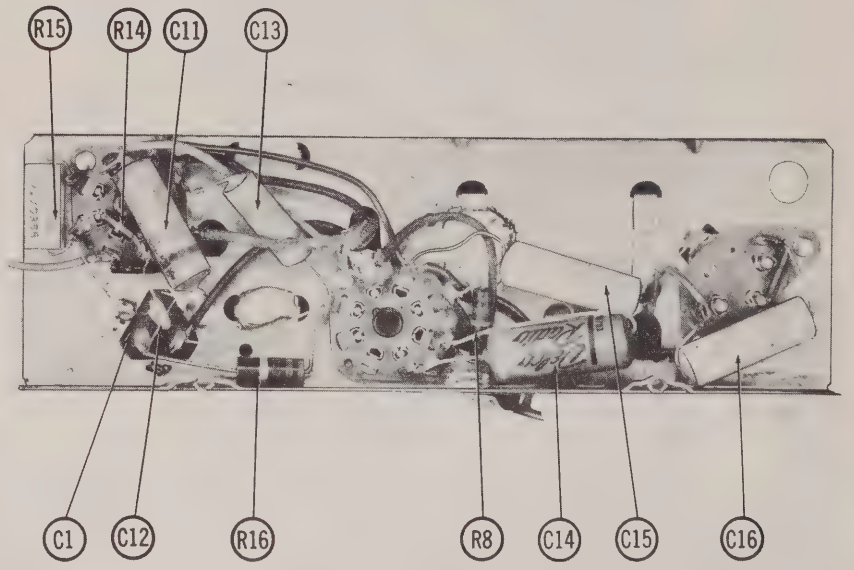
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

DIAL CORD STRINGING



POWER CHASSIS





PHOTOFACT* Folder
with CIRCUITRACE*

WESTINGHOUSE MODELS H655P5, H656P5, H657P5 (Ch. V-2393-1)

WESTINGHOUSE MODELS H655P5, H656P5, H657P5 (Ch. V-2393-1)

MODEL H655P5

TRADE NAME	Westinghouse Models H-655P5, H-656P5, H-657P5 (Ch. V-2393-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	Battery Operated Portable AM Transistorized Receiver
POWER SUPPLY	6 Volts DC
TUNING RANGE—BROADCAST	540-1600KC
RATING	6MA @ 6 Volts DC (No Signal, Min. Volume) 9.5MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning Gang, Fully Open	Across Voice Coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1625KC	"	"	A4	"
3.		"	1400KC	Tune To 1400KC Signal	"	A5	"
4.		"	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning gang. Repeat Steps 2, 3, & 4

DISASSEMBLY

1. Remove tuning knob. (Insert a loop of string under knob and pull up.)
2. Remove volume control knob.
3. Remove handle by spreading until it clears holes in cabinet sides.
4. Remove screw under tuning knob.
5. Remove two screws holding cabinet back. Remove back.
6. Remove two screws holding printed board to cabinet front.
7. Remove printed board.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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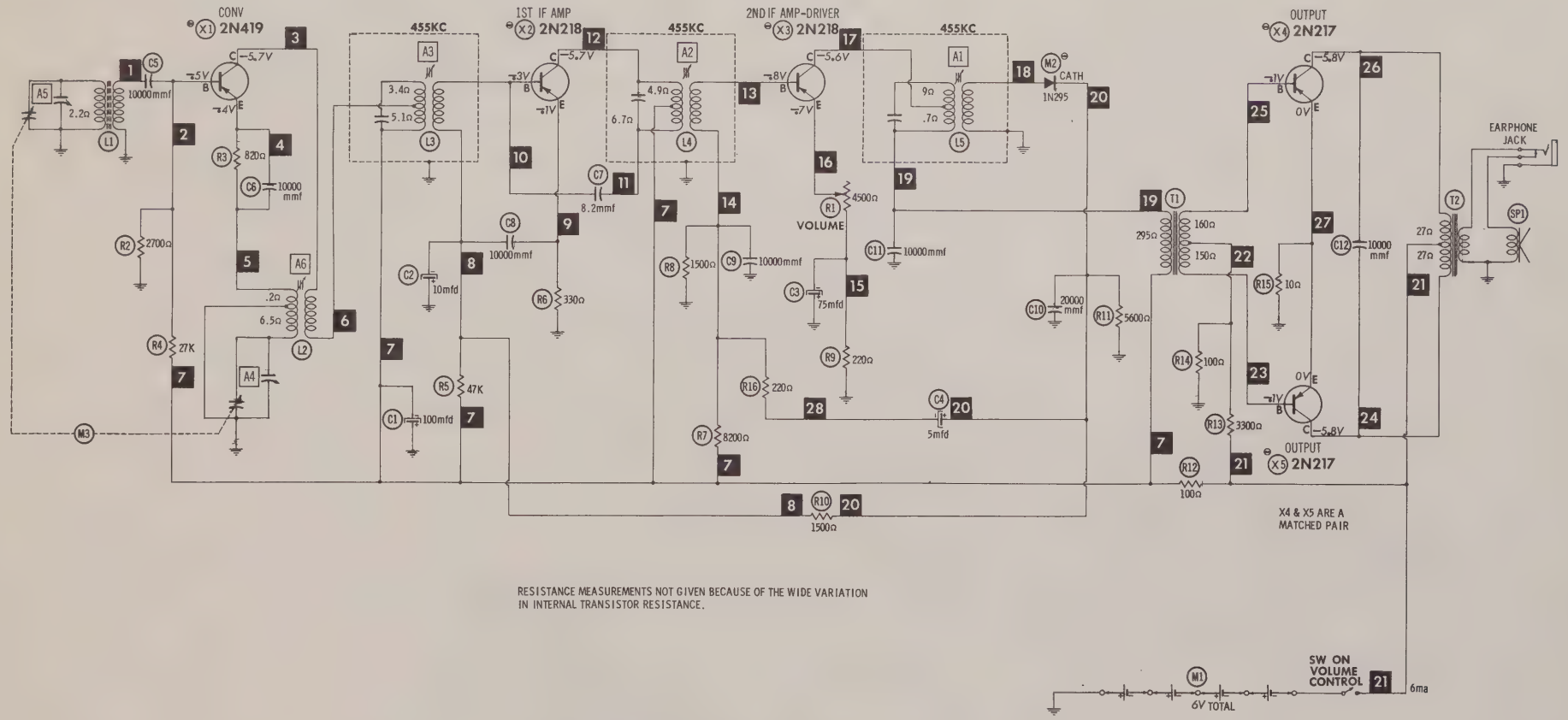
H730

SET 443 FOLDER 17



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE*
*TRADE MARK

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WESTINGHOUSE MODELS H655P5, H656P5, H657P5 (Ch. V-2393-1)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES	
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.		
X1	2N419	Converter		2N412	2N486	2N412	PNP	Note 1
X2	2N218	1st IF Amplifier		2N410	2N483	2N410	PNP	Note 2
X3	2N218	2nd IF Amp. -AF Amp.		2N410	2N483	2N410	PNP	Note 2
X4	2N217	Output		2N408	2N632	2N408	PNP	Note 3
X5	2N217	Output		2N408	2N632	2N408	PNP	Note 3

Note 1. Alternate Type 2N412.
Note 2. Alternate Type 2N410.
Note 3. X4 & X5 are a matched pair. Alternate Type 2N408.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	WESTINGHOUSE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	100	7	218V012H15	PWE10100	NL100-10	TT15X100	ML100-6		TE-1102
C2	10	3	218V012H16	PWE3010	NL10-3	TT3X10	ML10-6		TE-1053
C3	75	3	218V012H17	PWE3100		TT6X80	ML75-6		TE-1059
C4	5	7	218V012H14	PWE10005	NL5-15	TT12X5	ML5-15		TE-1127

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C6	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C7	8.2		217V018A29	NPO-SI8.2		C10V82C			
C8	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C9	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C10	20000		215V303H04	BPD-02	DD-203	BYB6S2		5HK-S2	
C11	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C12	10000		215V111A03	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	4500Ω	½	270V050H02					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R2	2700Ω		250V222A72	
R3	820Ω		250V228A21	
R4	27K		250V222A73	
R5	47K		250V224A73	
R6	330Ω		250V223A31	
R7	8200Ω		250V228A22	
R8	1500Ω		250V221A52	
R9	220Ω		250V222A21	

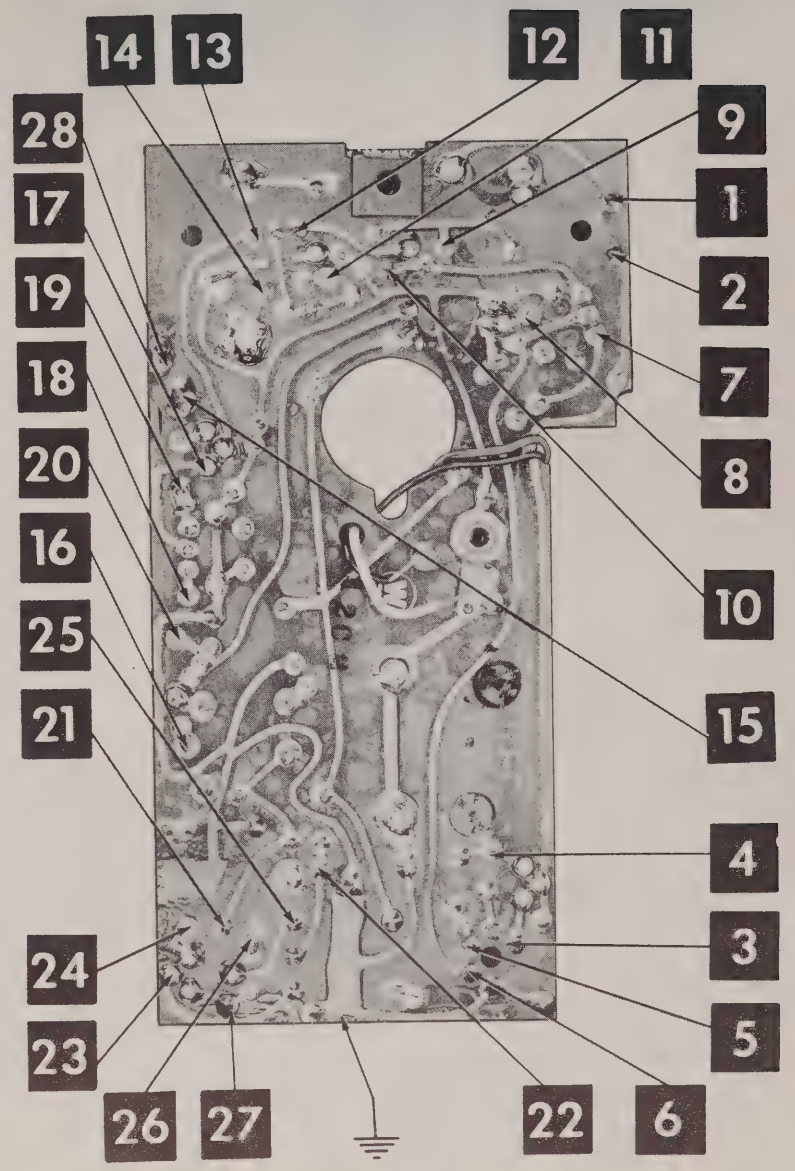
ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R10	1500Ω		250V221A52	
R11	5600Ω		250V225A62	
R12	100Ω		250V231A01	
R13	3300Ω		250V223A32	
R14	100Ω		250V221A01	
R15	10Ω		250V221A00	
R16	220Ω		250V222A21	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Westinghouse PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Stick	310V029H01					
L2	Osc. Coil	230V057H01					
L3	1st IF	235V041H01					
L4	2nd IF	235V041H02					
L5	3rd IF	235V041H03					

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.3	: 1	430V054H01						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	600Ω CT	3-4Ω	430V055H01							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	570V044H01	3A05	

BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	6V			Z①		915① E9①②		M-15R① ZM-9①②	① 4 Used ② Mercury Type

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		WESTINGHOUSE PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295*	296V002H01	1N60	1N295	Detector (Pigtail)

* Some versions may use 1N78G in this application.

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
M3	Tuning Cap.	330V020H01	2 Gang, Ant. 9-138mmf, Osc. 13-93mmf.

CABINETS & CABINET PARTS

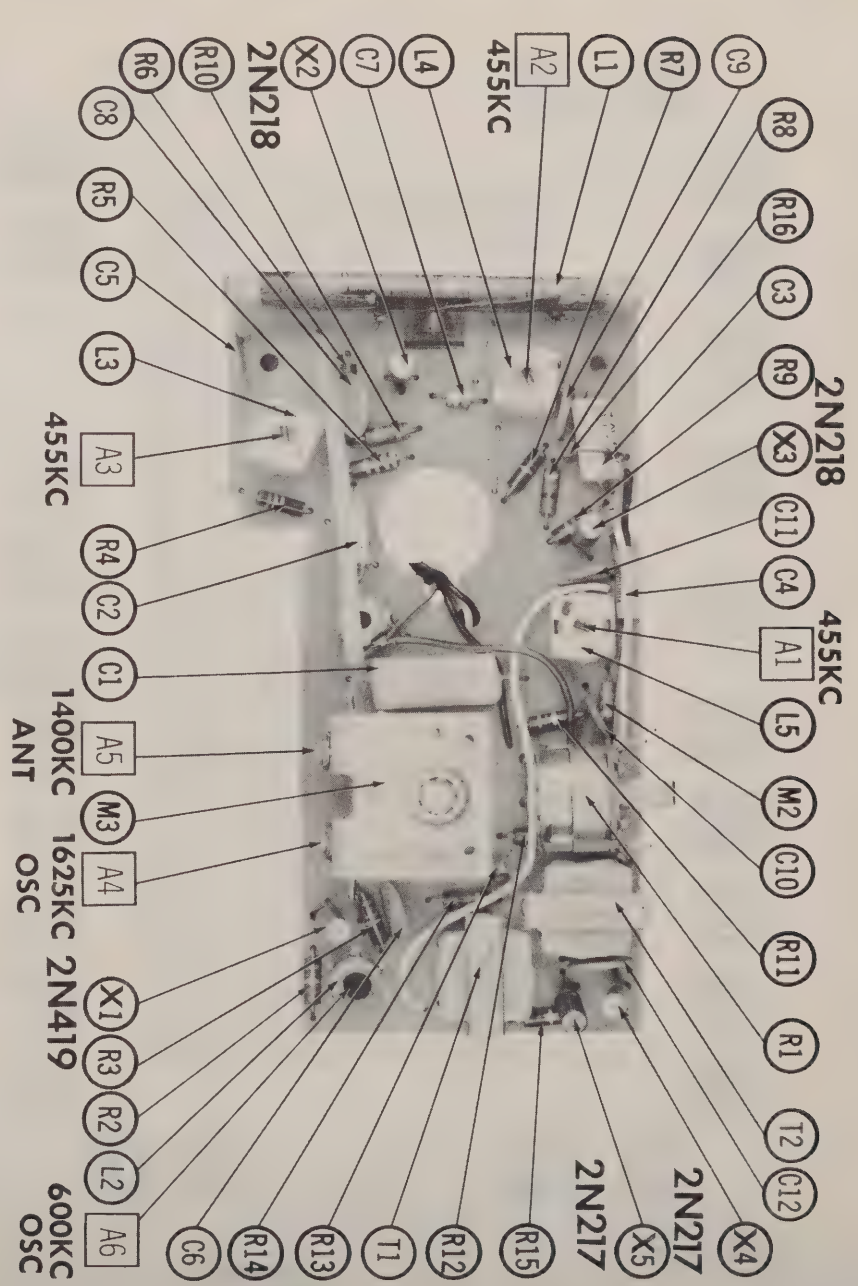
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	550V080H01	Tuning
Knob	550V081H01	On-Off-Volume
Handle	558V151H01	
Cabinet	513V026H01	Includes Grille, Model H-655P5
Cabinet	513V026H02	Includes Grille, Model H-656P5
Cabinet	513V026H03	Includes Grille, Model H-657P5

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT* Folder

ZENITH MODEL
HF660F (Ch. 6B06)

ZENITH MODEL
HF660F (Ch. 6B06)

TRADE NAME	Zenith Model HF660F (Ch. 6B06)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 6 Tube AM Receiver With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles
RATING	36 Watts, .358 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	530KC - 1600KC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE ZENITH S-14083 - PHOTOFACT SET 392 FOLDER 14
NOTE: TUNING KNOB IS CAPTIVE AND REMAINS WITH CABINET. SLIDE SHAFT FROM KNOB WHEN REMOVING.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4.....GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO # 2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5mfd.	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H985

SET 443 FOLDER 18

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	
V4	Phase Inverter	12AV6	
V5	Output	35C5	
V6	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■100	150	22-3078	AFH3-11-50	A0241	FP311.65	TMS-22	TVLS-2442.9*	
B	▲60	150			BR6015		TD-60-250		
C2	12	150	22-2056	PRS150V12	BBR12-150	TC43	TD-12-150	TVA-1407	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C4	100			22-5	BPD-0001	DD-101	L10T1	UC-310	5GA-T1	
C5	100			22-5	BPD-0001	DD-101	L10T1	UC-310	5GA-T1	
C6	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C8	47		N75 10%	22-2376						
C9	2200		10%	22-18	DI-2200			JL-222	5HK-D22S 10%*	
C10	.022	200	10%	22-2807				GEM-1612	2WF-S22	
C11	470			22-16	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C12	220		10%	22-2321	NPO-SI 220	D6-221	LT6T22	JL-322	5GA-T22S 10%*	
C13	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C14	.47	200	10%	22-2765				GEM-2047	2WF-P47	
C15	.022	400		22-2805	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C16	.33	200			P288N-33			GEM-2033	2TM-P33S*	
C17	3300		10%	22-2670	DI-3300			JL-233	5HK-D33S 10%*	
C18	2200			22-18	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C19	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C20	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	.022	200	10%	22-2807				GEM-1612	2WF-S22	
C22	3300		10%	22-2670	DI-3300			JL-233	5HK-D33S 10%*	
C23	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C24	1500		10%	22-12	DI-1500			JL-215	5HK-D15	
C25	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C26	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch							Radio-Phono
B	3meg	½	63-4372			† Q18-140X		Loudness, Tap at 2meg.
C	Shaft					SK-2		
D	Switch					76-1		Power On-Off
R2A	20K	½	63-4003				■UE3778	Bass
B	1meg	½						Treble

† Does not include R1A

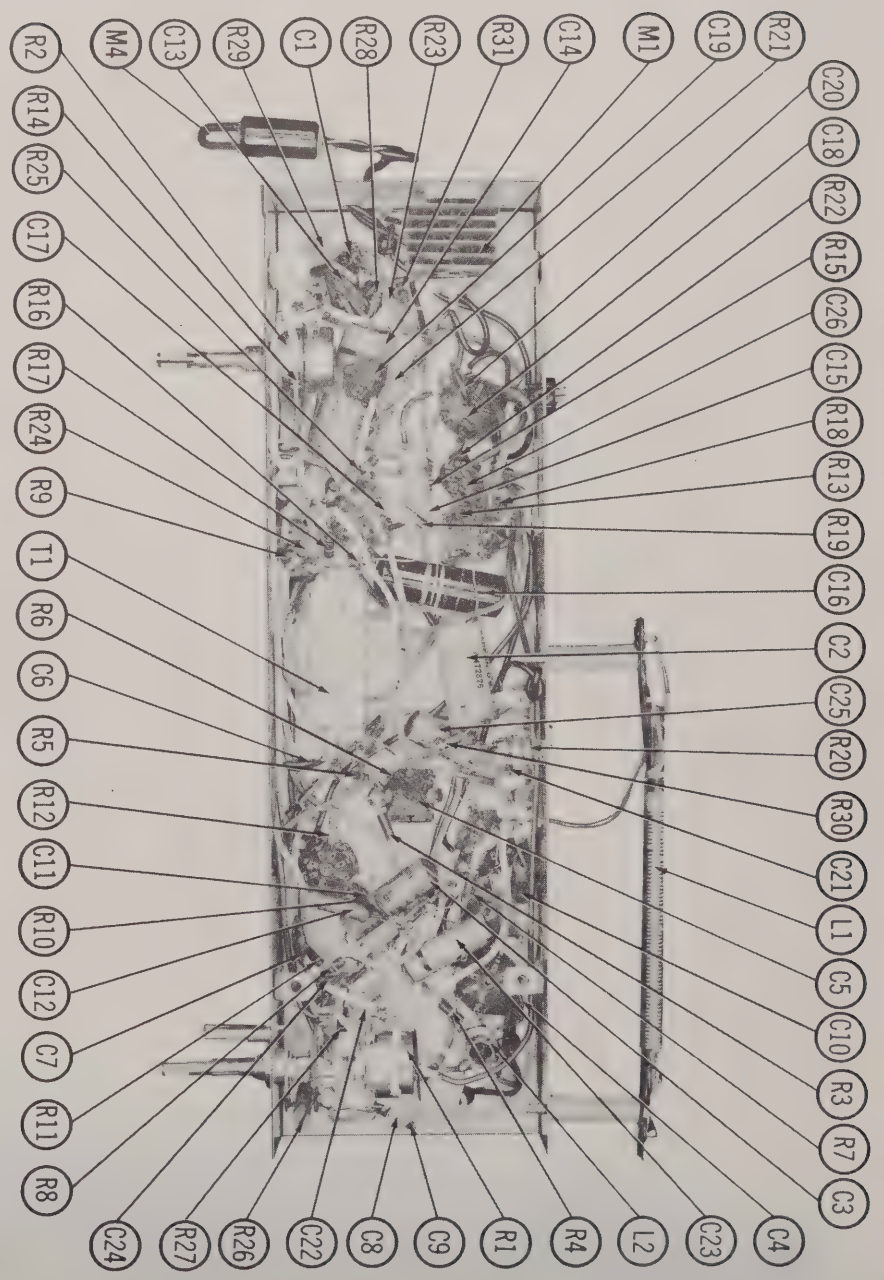
■ "STA-LOC" Equivalent: FA24R, OS875A, RU16A, IK1562.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R3	2.2meg		63-1926	
R4	22K			
R5	47K		63-1856	
R6	330K		63-1891	
R7	3900Ω		63-1810	
R8	120K		63-1873	

CHASSIS-BOTTOM VIEW



PARTS LIST & DESCRIPTION (continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R9	220K		63-1883	
R10	220Ω		63-1757	
R11	6.8meg		63-1947	
R12	2200Ω		63-1799	
R13	220K		63-1883	
R14	220Ω		63-1757	
R15	270K		63-1887	
R16	220K		63-1883	
R17	100K		63-1870	
R18	3300Ω		63-1806	
R19	220K		63-1883	
R20	10K		63-1827	
R21	47K		63-1856	
R22	100Ω	2	63-1973	
R23	47K		63-1856	
R24	1000Ω		63-1785	
R25	10K		63-1827	
R26	820Ω	1	63-3281	
R27	120K		63-1873	
R28	220Ω		63-1757	
R29	33Ω	3	63-2772	
R30	33K			
R31	100K		63-1870	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	S-24659					
L2	Osc. Coil	S-24654					
L3	Input IF	95-1504	16-6780	BC-356	13-PC1	RF-4	
L4	Output IF	95-1556			13-PC6		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	4300Ω CT	270Ω Full Winding	95-1618							
		SEC 2 3-4Ω								
	TURN RATIO	SEC 1								
	8 :	1 Full Winding								

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	49-849	8A31	
SP2	3½"x3"	Electrostatic		S-23829		
SP3	3½"x3"	Electrostatic		S-23829		

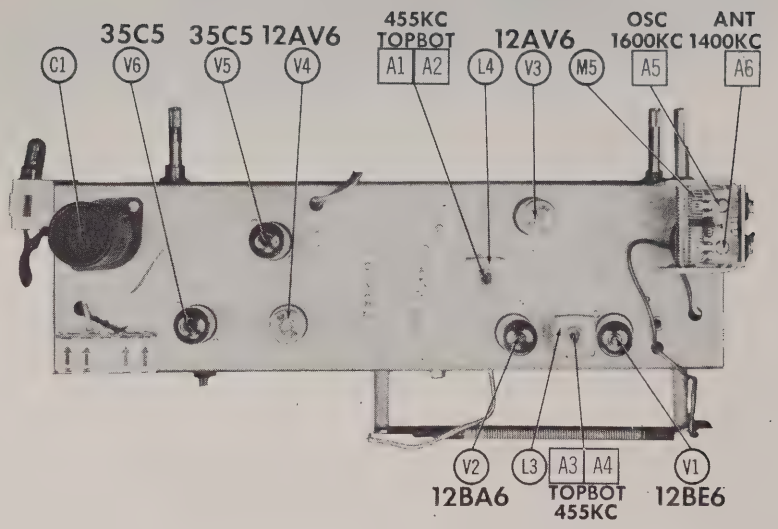
SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.100A	212-18	1235AH	T150 SD-94①	150 K200①	① Silicon Type

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	142-87	93-T				

CHASSIS—TOP VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3			*† W-201TPS or *†♦ W-201DS or *♦ W-201TPD	* Includes Cartridge † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Lamp	100-105	#NE51 (Neon)
M5	Tuning Cap.	22-3073	2 Section

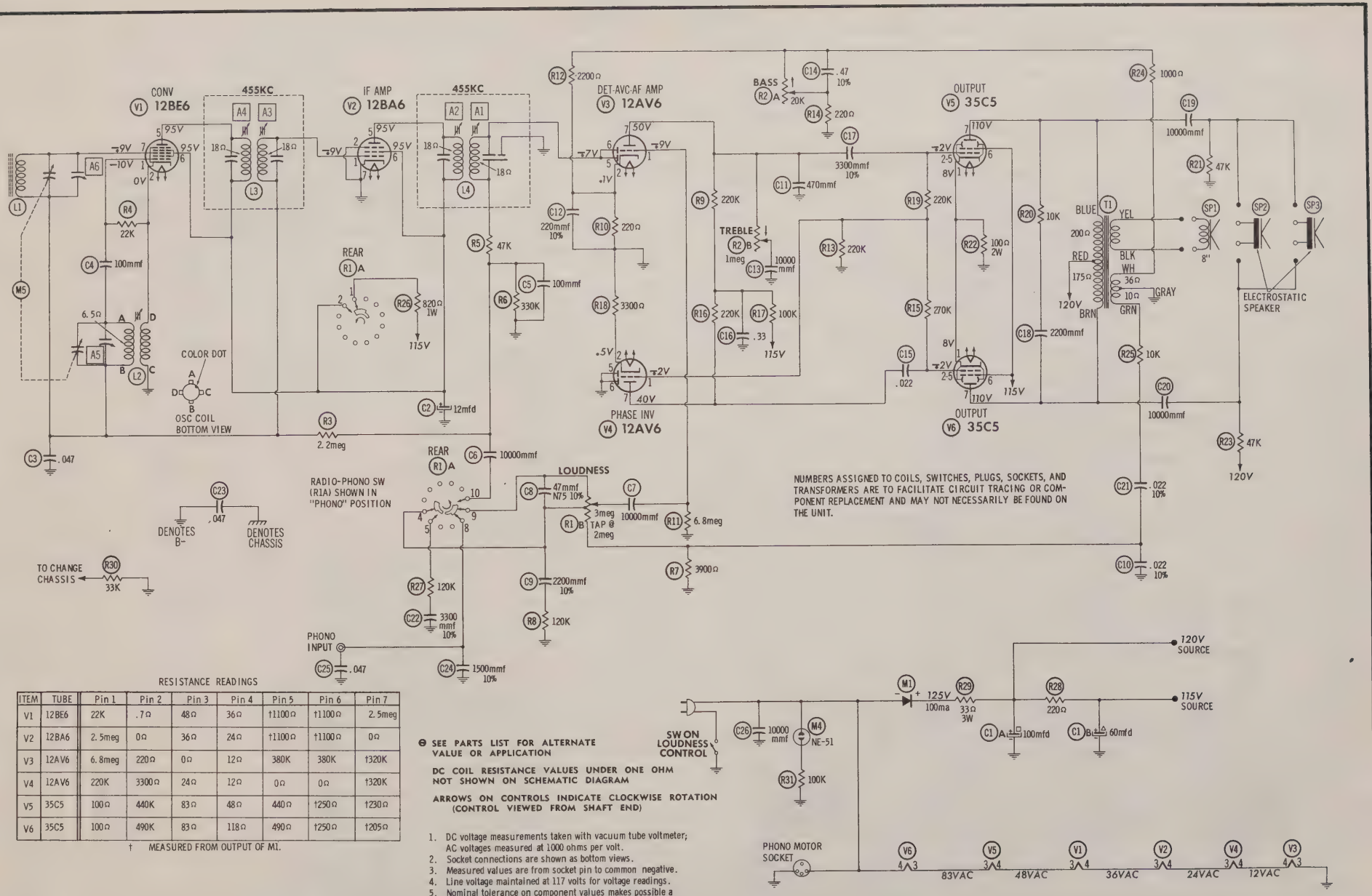
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1995	Tuning
Knob	46-1992	Loudness, Treble
Knob	46-1993	Bass
Knob	46-2021	Phono-Radio
Cabinet	14-2419F	Includes Handle
Handle	36-212	
Lens	171-15	Pilot Light

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.7Ω	48Ω	36Ω	†1100Ω	†1100Ω	2.5meg
V2	12BA6	2.5meg	0Ω	36Ω	24Ω	†1100Ω	†1100Ω	0Ω
V3	12AV6	6.8meg	220Ω	0Ω	12Ω	380K	380K	†320K
V4	12AV6	220K	3300Ω	24Ω	12Ω	0Ω	0Ω	†320K
V5	35C5	100Ω	440K	83Ω	48Ω	440Ω	†250Ω	†230Ω
V6	35C5	100Ω	490K	83Ω	118Ω	490Ω	†250Ω	†205Ω

† MEASURED FROM OUTPUT OF M1.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ZENITH MODEL HF660F (Ch. 6B06)

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

ZENITH MODEL Royal 300F, R, Y (Ch. 7AT42)

ZENITH MODEL Royal
300F, R, Y (Ch. 7AT42)

MODEL ROYAL 300Y

TRADE NAME	Zenith Models Royal 300F, Royal 300R, Royal 300Y (Chassis 7AT42, Green Dot Color Code)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	6 Volts DC
TUNING RANGE—BROADCAST	540 - 1600KC
RATING	10.8MA @ 6 Volts DC (No Signal, Min. Volume) 15MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
Use Fresh Battery.
Suggested Alignment Tools: A1 thru A6.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2515, 2531, 2532

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	"	"	A4	"
3.		"	535KC	Tuning gang fully closed	"	A5	Adjust for maximum output. Repeat Steps 2 & 3.
4.		"	1260KC	Tune for 1260KC signal	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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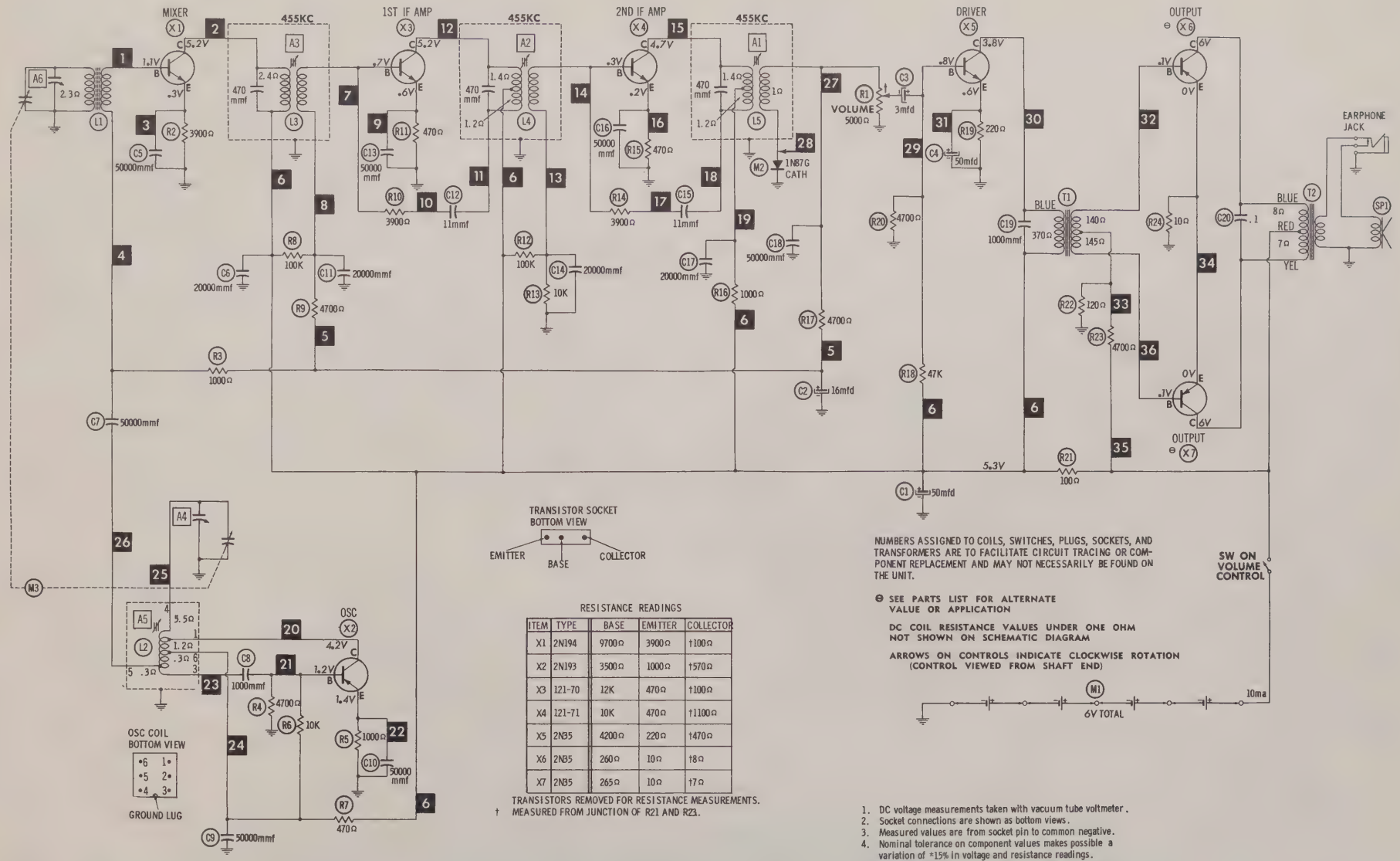
SET 443 FOLDER 19



RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N194	9700Ω	3900Ω	†100Ω
X2	2N193	3500Ω	1000Ω	†570Ω
X3	121-70	12K	470Ω	†100Ω
X4	121-71	10K	470Ω	†1100Ω
X5	2N35	4200Ω	220Ω	†470Ω
X6	2N35	260Ω	10Ω	†8Ω
X7	2N35	265Ω	10Ω	†7Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
† MEASURED FROM JUNCTION OF R21 AND R23.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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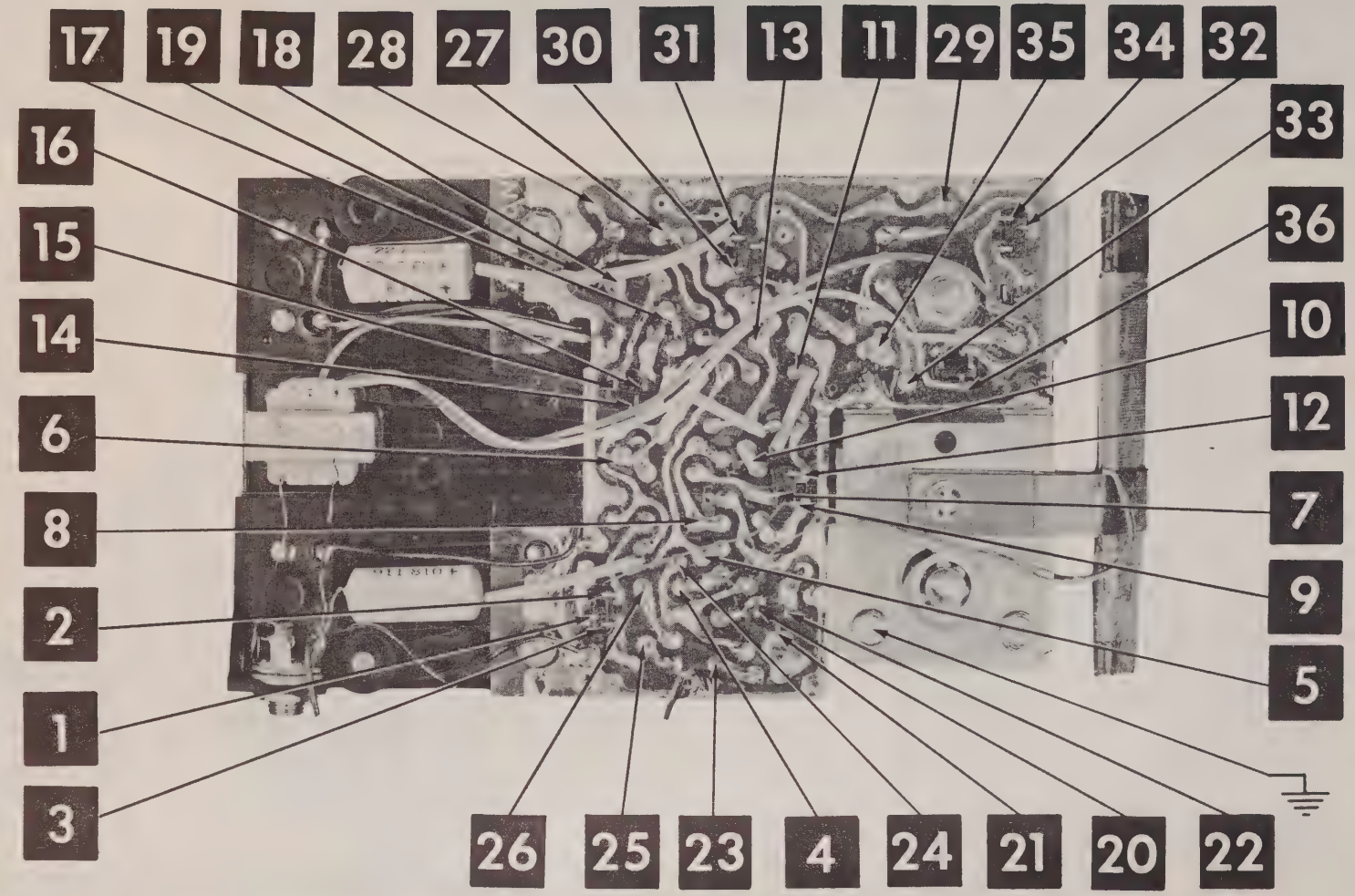
ZENITH MODEL Royal 300F, R, Y (Ch. 7AT42)



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PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	425Ω CT	14Ω	95-1519	GH119				TR-18		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	2 3/4"	PM	14Ω	49-788		

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	6V	Z-8 ①		Z ①		915① E9 ②		M-15R① ZM-9②	① 4 Used ② Mercury Type, 4 Used

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N87G	103-19	1N60	1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap. Printed Board	22-3012 N204-7	2 Gang (Ant. 17-148mmf, Osc. 8-89mmf)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

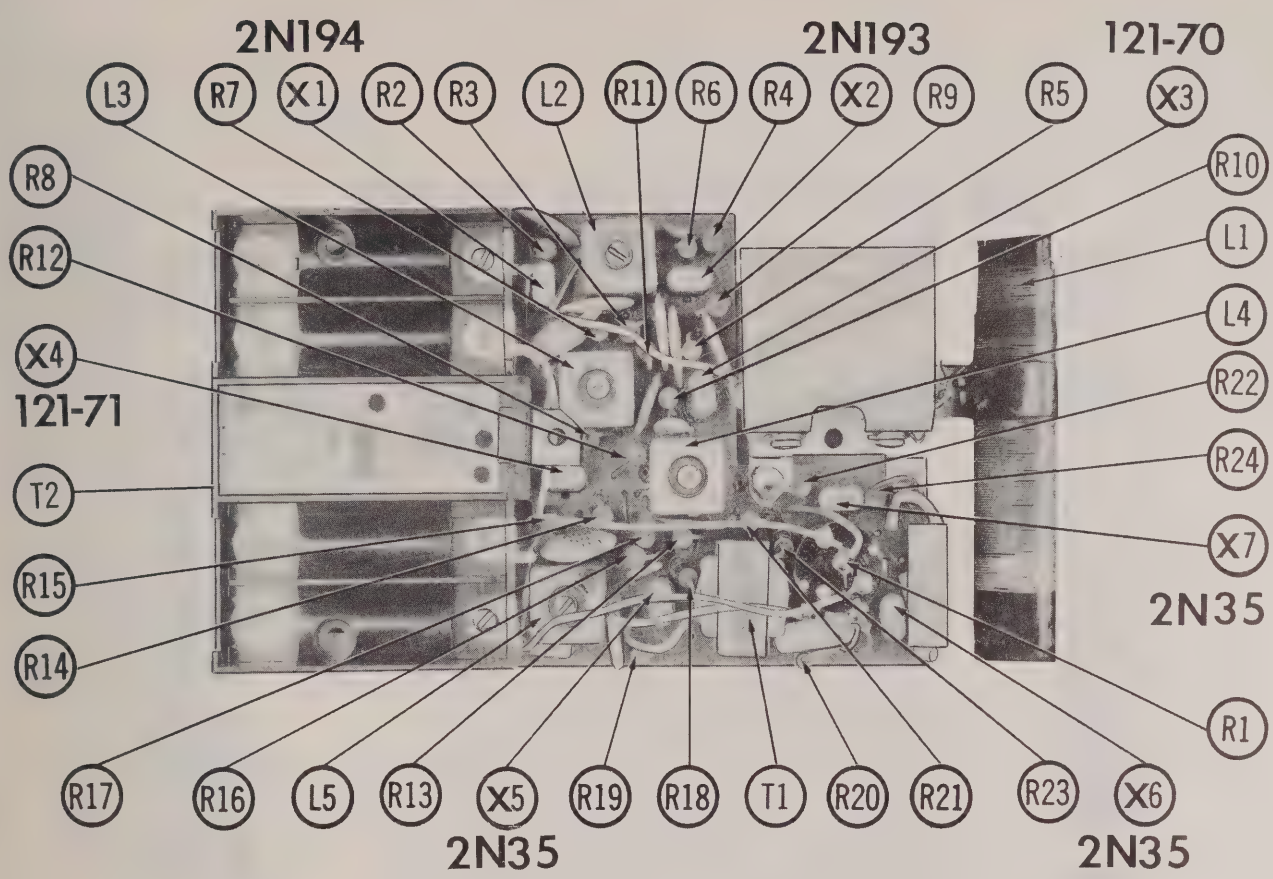
NAME	PART NO.	DESCRIPTION
Knob	46-1880	Tuning, Model Royal 300Y
Knob	46-1881	Tuning, Model Royal 300R
Knob	46-1882	Tuning, Model Royal 300F
Knob	46-1885	On-Off-Volume, Model Royal 300Y
Knob	46-1886	On-Off-Volume, Model Royal 300R
Knob	46-1887	On-Off-Volume, Model Royal 400F
Cabinet Front	S-42810	Model Royal 300Y
Cabinet Front	S-43265	Model Royal 300R
Cabinet Front	S-43267	Model Royal 300F
Cabinet Rear	14-2322	Model Royal 300Y
Cabinet Rear	14-2323	Model Royal 300R
Cabinet Rear	14-2324	Model Royal 300F
Handle	36-189	
Dial Crystal	192-245	

WIRING DATA

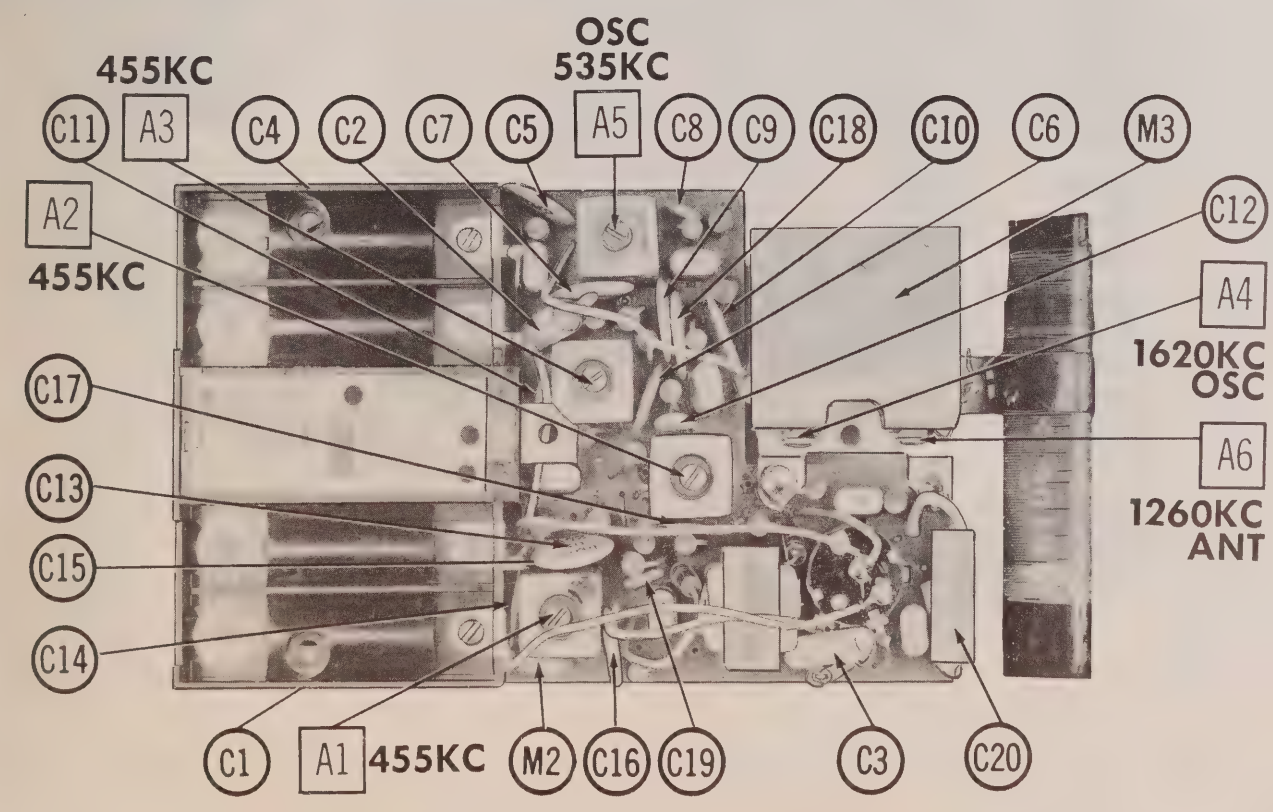
General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DISASSEMBLY

1. Remove two screws from cabinet back. Remove back.
2. Remove screw from cabinet top. Remove control escutcheon.
3. Remove two control knobs by pulling.
4. Remove batteries.
5. Remove two screws, one under each of the outside batteries.
6. Unscrew red post near tuning gang.
7. Lift out printed board. Loop fits in cabinet grooves and should be carefully freed.



CHASSIS TOP VIEW



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR. PART NO.	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	121-22	Mixer (2N194)	2N438			2N194	NPN
X2	121-21	Osc. (2N193)	2N439			2N193	NPN
X3	121-70	1st IF Amp.	2N438			2N516	NPN
X4	121-71	2nd IF Amp.	2N438			2N515	NPN
X5	121-7	Driver (2N35)	2N438			2N35	NPN
X6	121-8	Output (2N35)	2N438			SYL832	NPN } Matched Pair
X7	121-8	Output (2N35)	2N438			SYL832	NPN }

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	50	6	22-2726	PWE6050	NL50-6	TT6X50	ML50-6	TE-1100	
C2	16	3	22-2871	PWE3015	NL15-6	TT6X15	ML20-6	TE-1053.5	
C3	3	12	22-2884	XPP-12003	NL3-10	TT12X2	ML2-15	TE-1122	
C4	50	6	22-2726	PWE6050	NL50-6	TT6X50	ML50-6	TE-1100	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	50000			22-2728					TG-S50	
C6	20000			22-2885		DD-203				
C7	50000			22-2728					TG-S50	
C8	1000			22-2729						
C9	50000			22-2728					TG-S50	
C10	50000			22-2728					TG-S50	
C11	20000			22-2885		DD-203				
C12	11			22-2617						
C13	50000			22-2728					TG-S50	
C14	20000			22-2885		DD-203				
C15	11			22-2617						
C16	50000			22-2728					TG-S50	
C17	20000			22-2885		DD-203				
C18	50000			22-2728					TG-S50	
C19	1000			22-2729						
C20	.1	50		22-2998					2WF-P10	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	63-4034					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R2	3900Ω		63-1810	
R3	1000Ω		63-1786	
R4	4700Ω		63-1813	
R5	1000Ω		63-1786	
R6	10K		63-1827	
R7	470Ω		63-1772	
R8	100K		63-1869	
R9	4700Ω		63-1813	
R10	3900Ω		63-1810	
R11	470Ω		63-1772	
R12	100K		63-1869	
R13	10K		63-1827	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R14	3900Ω		63-1810	
R15	470Ω		63-1772	
R16	1000Ω		63-1786	
R17	4700Ω		63-1813	
R18	47K		63-1855	
R19	220Ω		63-1758	
R20	4700Ω		63-1813	
R21	100Ω		63-1744	
R22	120Ω		63-1747	
R23	4700Ω		63-1813	
R24	10Ω		63-1701	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	S-40123					
L2	Osc. Coil	95-1513					
L3	1st IF Trans.	95-1510					
L4	2nd IF Trans.	95-1511					
L5	3rd IF Trans.	95-1512					

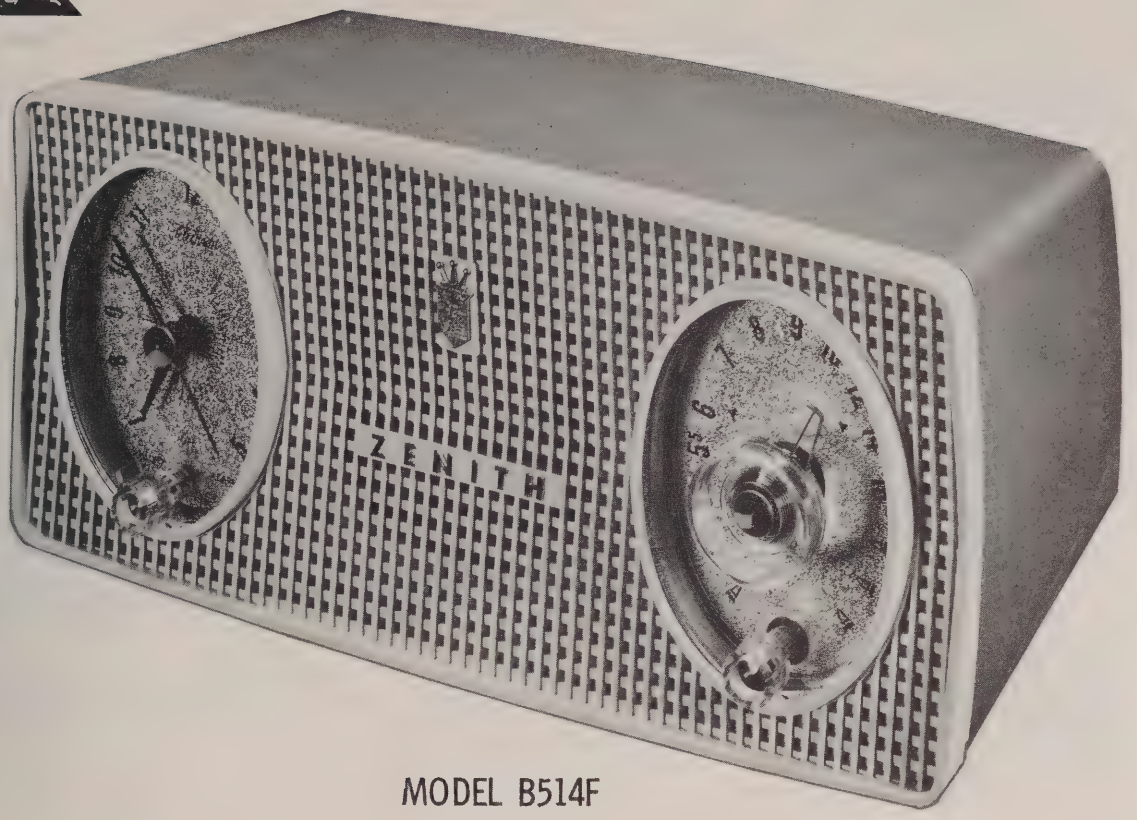
TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	: 1	95-1518						

PHOTOFACT* Folder

*TRADE MARK

ZENITH MODELS B509C, F, P, V, B511B, L, P, V, B514C, F, V, W, B515B, G, P, Y (Ch. 5B04, 5B06, 5B10, 5B11)



MODEL B514F

TRADE NAME	Zenith Models B509C, B509F, B509P, B509V (CH. 5B11); B511B, B511L, B511P, B511V (CH. 5B10); B514C, B514F, B514V, B514W, B515B, B515G, B515P, B515Y (CH. 5B04 or 5B506)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver (B509 & B511 Series Are Not Clock Versions)
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles — RATING 24 Watts, .30 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	535 - 1620KC

NOTE: TUNING KNOB IS CAPTIVE AND REMAINS WITH CABINET. SLIDE CHASSIS FROM KNOB.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.

Suggested alignment tools:
A1 thru A4, A6.....GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A7.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5mfd	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Point of non-interference	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	600KC	"	A6	"
4.		"	1400KC	Tune to 1400KC signal	"	A7	"

ZENITH MODELS B509C, F, P, V, B511B, L, P, V, B514C, F, V, W, B515B, G, P, Y (Ch. 5B04, 5B06, 5B10, 5B11)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	22-2351 ①	AFH2-19	XB0181	FP216	TMD-16	TVL-2442.1	
B	40	150							

① Chassis 5B10 & 5B11 use 60-20mfd (Part #22-2202).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100	500		22-5	BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C3	10000	500		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C4	.047	200		22-2792	P288N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C5	.047	200		22-2792	P288N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C6	10000	500		22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	63-4390①	B-59	A47-500K-S	Q11-133	TA55L	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

① Part #63-4440 (with switch) used in chassis 5B10; Part #63-4401 (with switch) used in chassis 5B11.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R2	22K		63-1842	
R3	47Ω		63-1730	Note 1
R4	2.2meg		63-1926	
R5	150Ω 10%		63-1750	
R6	1000Ω	1	63-965	

Note 1. Not used in chassis 5B11

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	250mmf, 220mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	105-43 ①	Aerovox PA-113-2 Centralab PC-151 Cornell-Dubilier 116TM2 Sprague DT-2

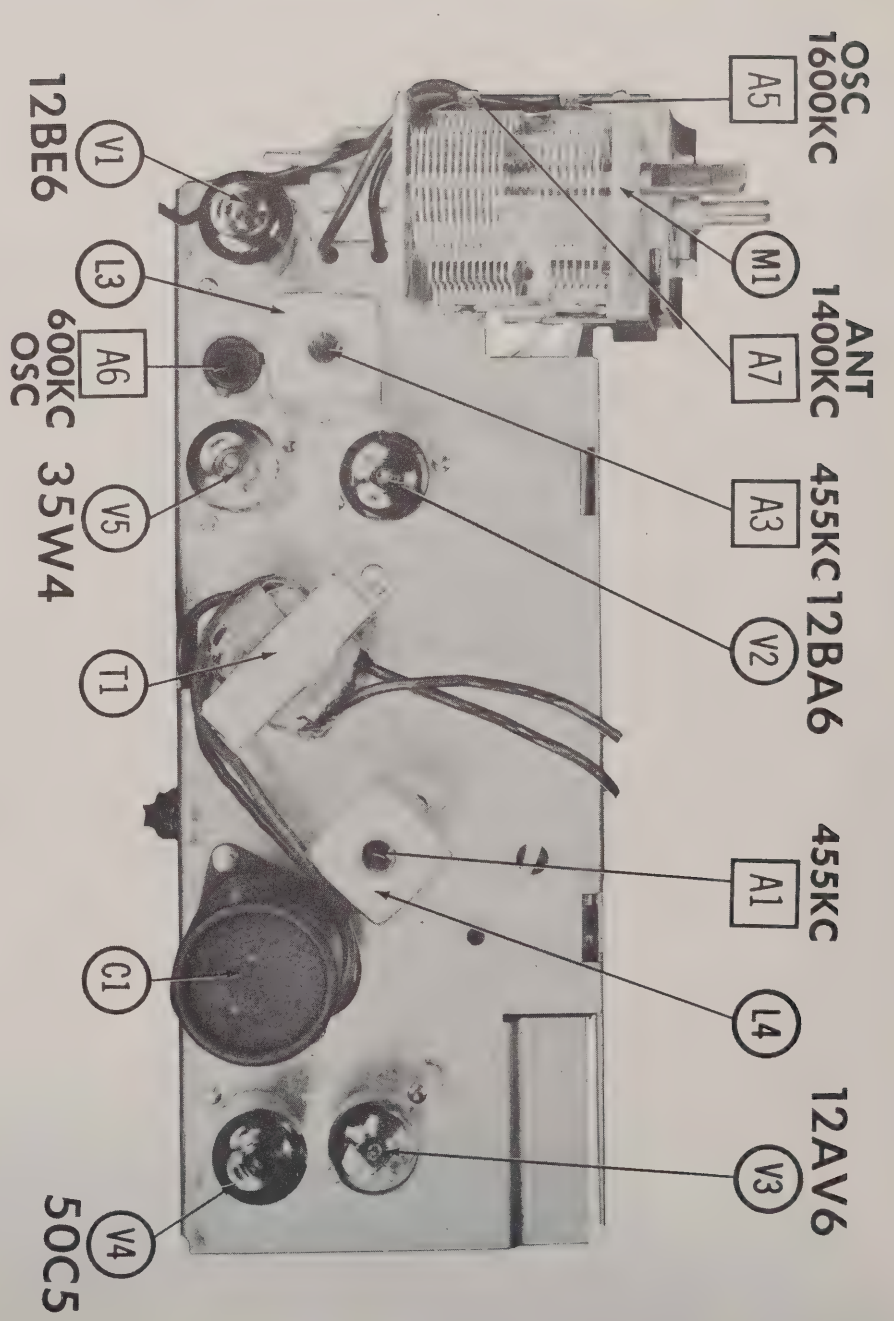
① Some versions may use separate items.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Ant.	S-44171 ①					
L2	Osc. Coil	S-43910	14-1074				
L3	Input IF	95-1504	16-6780	BC-356	13-PC1	RF-4	
L4	Output IF	95-1636	16-6780	BC-357	13-PC2	RF-4	

① Part No. S-44383 used in chassis 5B11.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω Tap ⓐ 3% (100Ω)	3-4Ω	95-1627 ①	Z1103 ②	A-3031②			24S50A ⓐ	S-16X ②	① Part #95-1626 (No tap) used in chassis 5B10, 5B11 ② Drill new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-838①	4A1	① Used in chassis 5B04, 5B06, 5B10
	3½"	PM		49-865 ②		② Used in chassis 5B11

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	Tuning Cap.	22-3088	2 Section, Ch. 5B04, 5B06, 5B10(Ant. 19-364mmf, Osc. 6-95mmf.)
	Tuning Cap.	22-3096	2 Section, Ch. 5B11
M2	Clock	172-3	Model B514 Series
	Clock	172-4	Model B515 Series

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

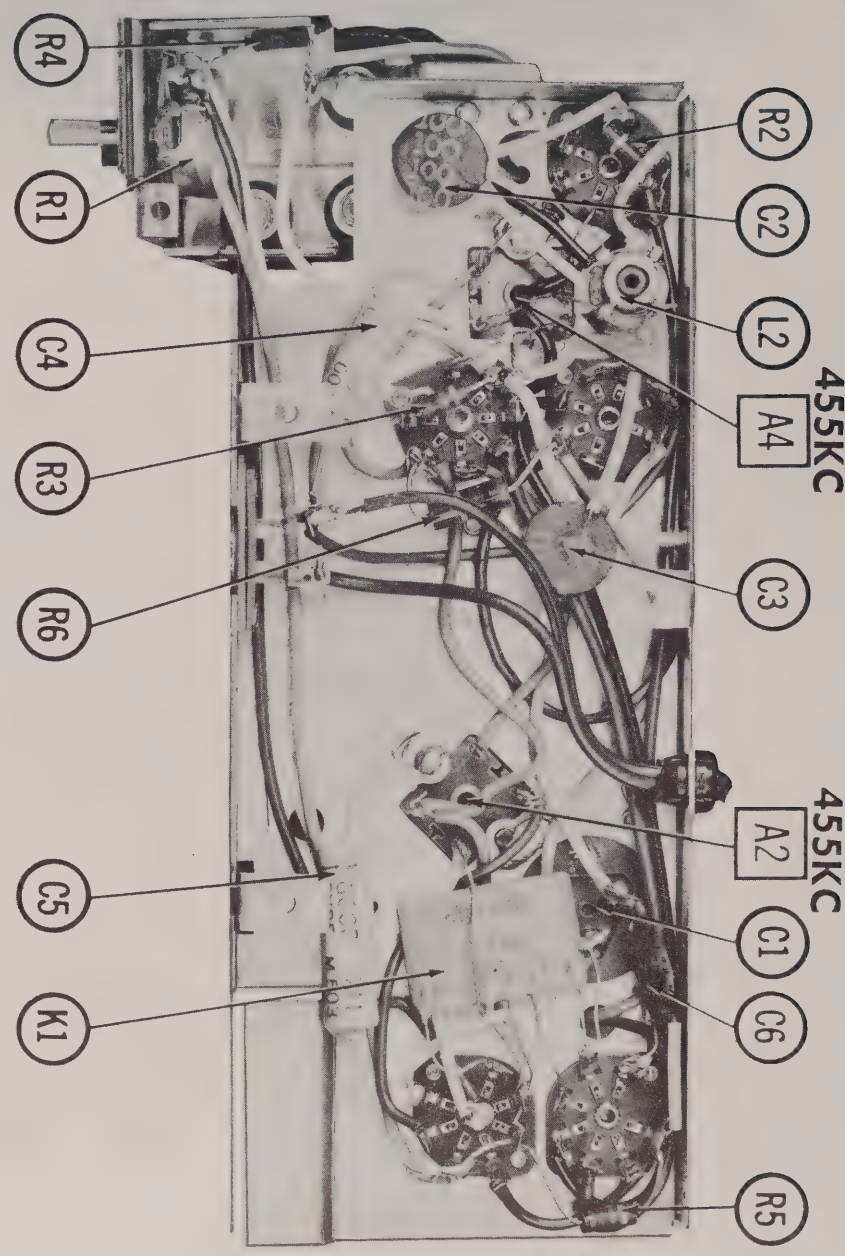
NAME	PART NO.	DESCRIPTION
Knob	46-2072	Tuning, Models B514 Series, B515 Series
Knob	46-2029	Tuning, Volume-On-Off, Model B509C
Knob	46-2030	Tuning, Volume-On-Off, Model B509P
Knob	46-2031	Tuning, Volume-On-Off, Model B509V
Knob	46-2032	Tuning, Volume-On-Off, Model B509F
Knob	46-2012	Tuning, Model B511 Series
Knob	46-2015	Volume, Models B514 Series
Knob	46-2013	Volume-On-Off, Model B511 Series
Knob	46-2016	Clock, Model B514 Series
Knob	46-2017	Clock, 2 Used, Model B515 Series
Knob	46-2028	Dial, Model B509 Series
Disc	27-259	Pointer Indicator, Model B509 Series
Scale	26-611	Radio Dial, Model B514 Series
Scale	26-619	Radio Dial, Model B515 Series
Crystal	192-264	Radio, Models B514, B515 Series
Crystal	192-265	Clock, Model B514 Series
Crystal	192-266	Clock, Model B515 Series
Cabinet	14-2460	Model B514F
Cabinet	14-2461	Model B514W
Cabinet	14-2462	Model B514C
Cabinet	14-2463	Model B514V
Cabinet	14-2466	Model B515B
Cabinet	14-2467	Model B515P
Cabinet	14-2468	Model B515G
Cabinet	14-2469	Model B515Y
Cabinet	14-2491	Model B509C
Cabinet	14-2492	Model B509P
Cabinet	14-2493	Model B509V
Cabinet	14-2494	Model B509F
Cabinet	14-2456	Model B511B
Cabinet	14-2457	Model B511P
Cabinet	14-2458	Model B511L
Cabinet	14-2459	Model B511V

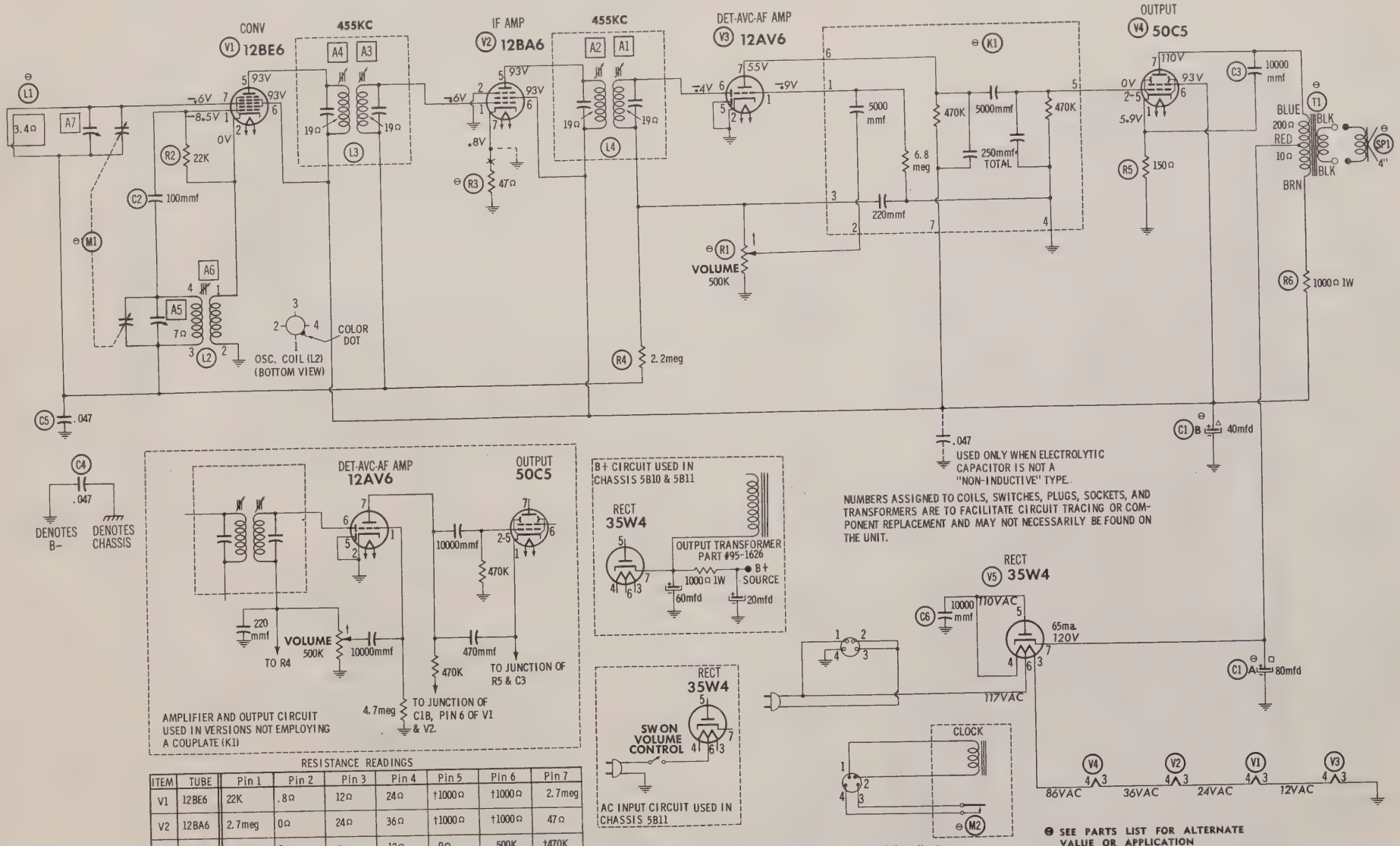
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	12Ω	24Ω	†1000Ω	†1000Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†1000Ω	†1000Ω	47Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	0Ω	500K	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1000Ω	†200Ω
V5	35W4	NC	TP	86Ω	120Ω	120Ω	115Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. TP TIE POINT
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

ZENITH MODELS B509C, F, P, V, B511B, L, P, V, B514C, F, V, W, B515B, G, P, Y (Ch. 5B04, 5B06, 5B10, 5B11)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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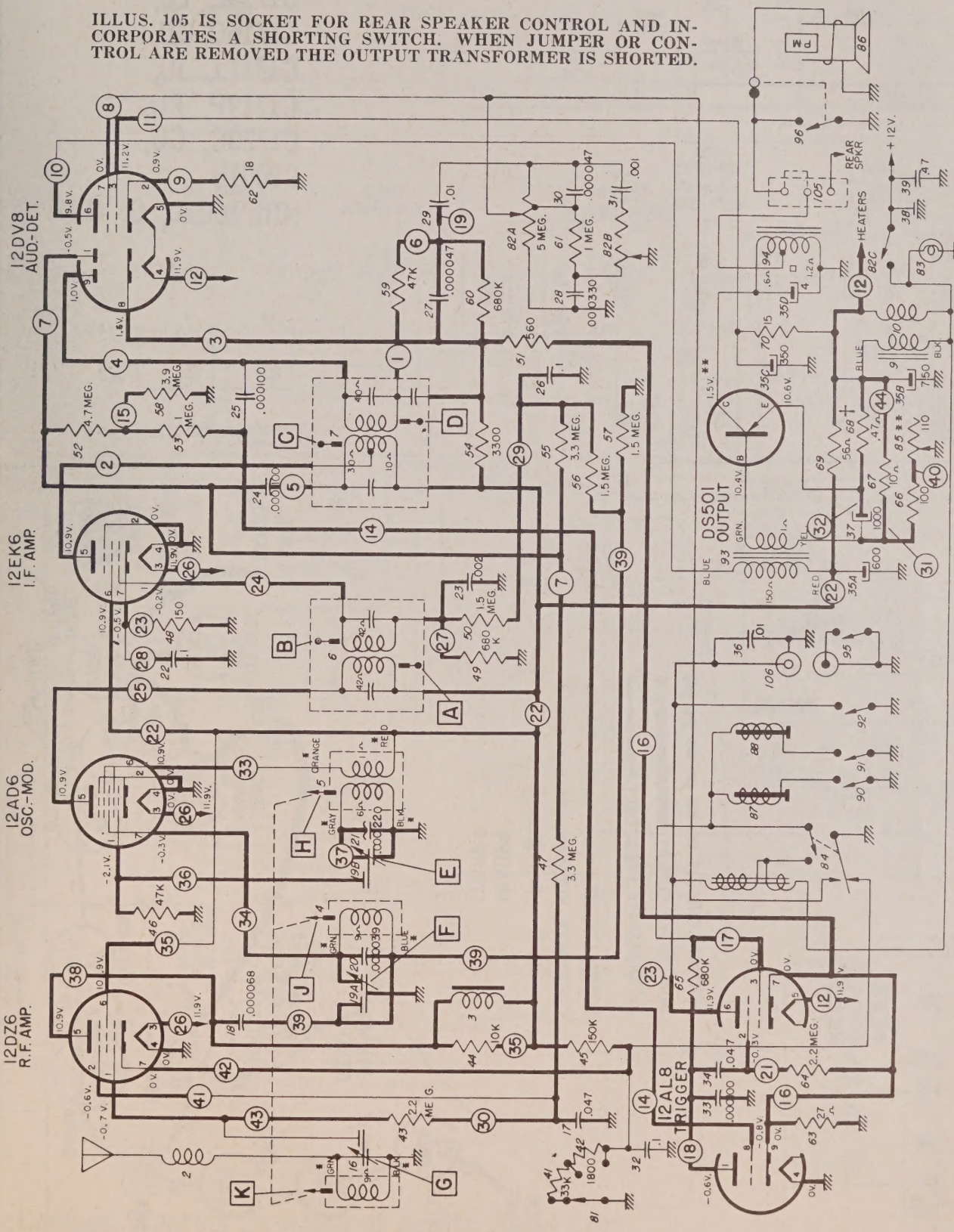
TUNER MAY STOP SEEKING WHEN SOLENOID ENERGIZES DUE TO THE DROP IN BATTERY ELIMINATOR VOLTAGE.

ILLUS. 105 IS SOCKET FOR REAR SPEAKER CONTROL AND INCORPORATES A SHORTING SWITCH. WHEN JUMPER OR CONTROL ARE REMOVED THE OUTPUT TRANSFORMER IS SHORTED.



OLDSMOBILE MODEL 989171 Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

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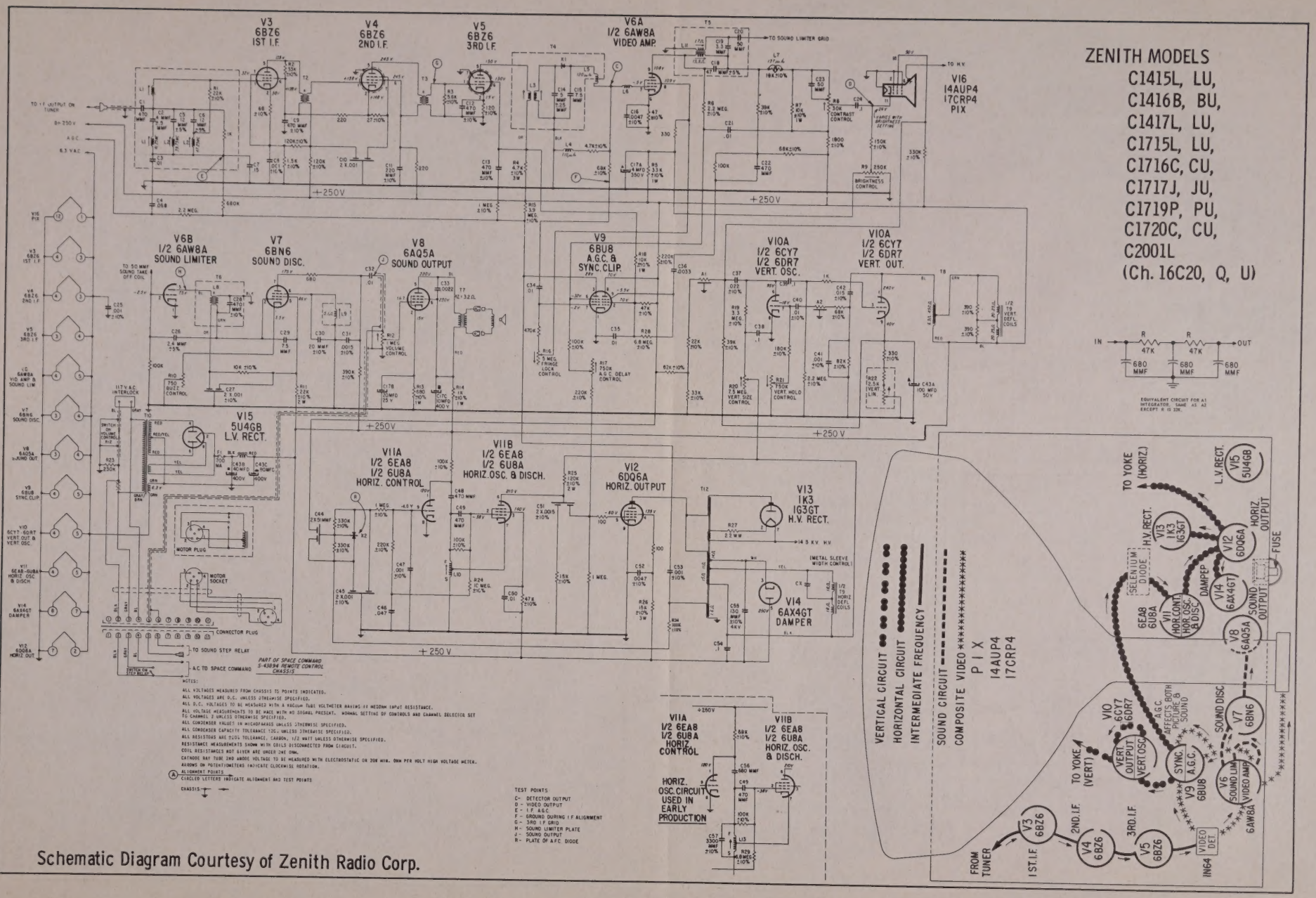
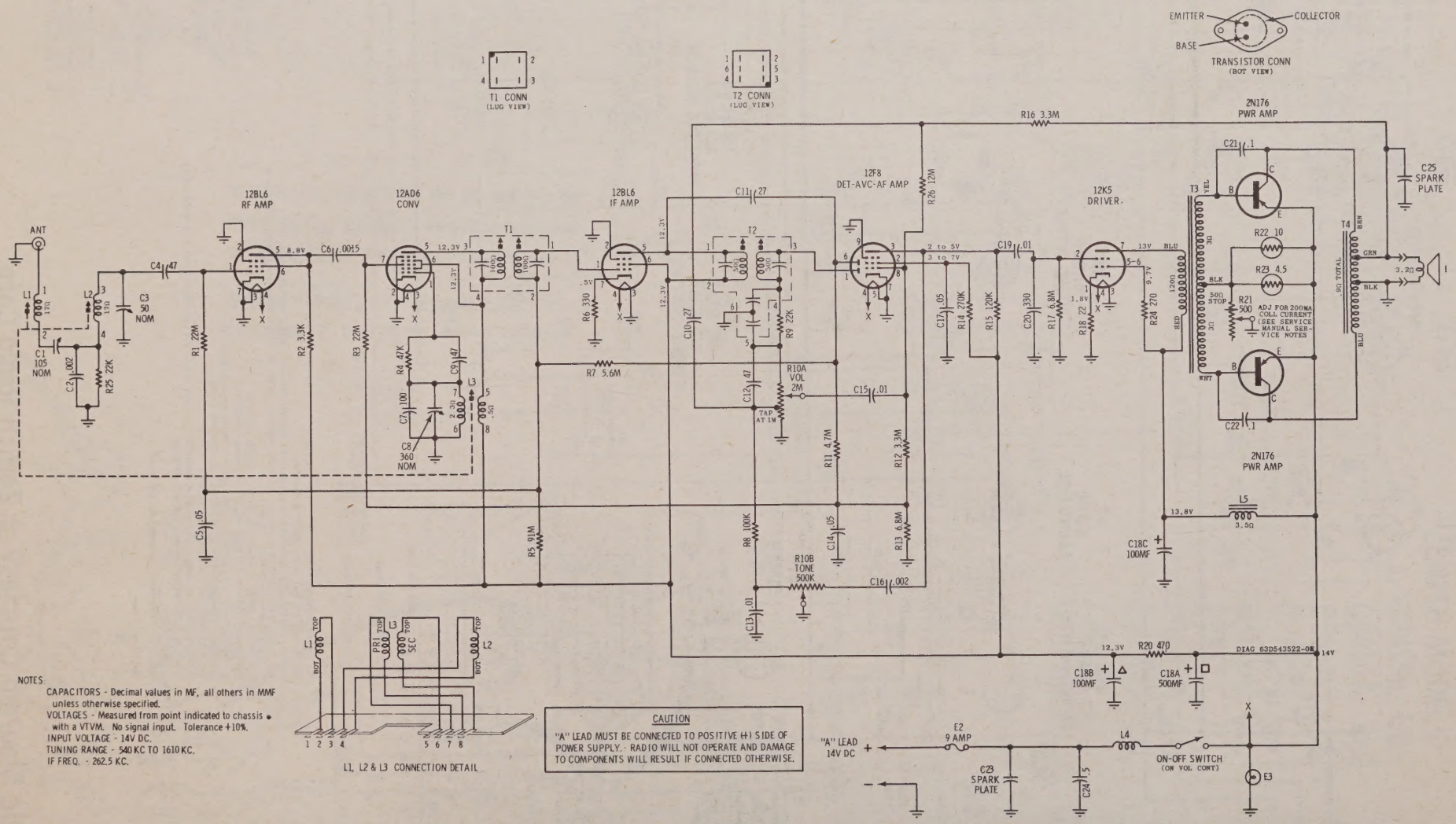

ZENITH MODELS
C1415L, LU,
C1416B, BU,
C1417L, LU,
C1715L, LU,
C1716C, CU,
C1717J, JU,
C1719P, PU,
C1720C, CU,
C2001L
(Ch. 16C20, Q, U)
V3 6BZ6 IST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A I/2 6AW8A VIDEO AMP.
V16 I4AUP4 I7CRP4 PIX
V6B I/2 6AW8A SOUND LIMITER
V7 6BN6 SOUND DISC.
V8 6AQ5A SOUND OUTPUT
V9 6BU8 A.G.C. & SYNC. CLIP.
V10A I/2 6CY7 I/2 6DR7 VERT. OSC.
V10A I/2 6CY7 I/2 6DR7 VERT. OUT.
V15 5U4GB L.V. RECT.
V11A I/2 6EA8 I/2 6U8A HORIZ. CONTROL
V11B I/2 6EA8 I/2 6U8A HORIZ.OSC. & DISCH.
V12 6DQ6A HORIZ. OUTPUT
V13 1K3 1G3GT H.V. RECT.
V14 6AX4GT DAMPER
+250V
VERTICAL CIRCUIT
HORIZONTAL CIRCUIT
INTERMEDIATE FREQUENCY
SOUND CIRCUIT
COMPOSITE VIDEO
P I X
I4AUP4
I7CRP4
TO YOKE (HORIZ.)
L.V.RECT.
V15 5U4GB
HORIZ. OUTPUT
FUSE
H.V.RECT.
V13 1K3 1G3GT
V12 6DQ6A
SELENIUM DIODE
DAMPER
V14 6AX4GT
6EA8 6U8A
V11 HOR.CONT. HOR.OSC. & DISC.
SOUND OUTPUT
V8 6AQ5A
TO YOKE (VERT.)
V10 6CY7 6DR7
VERT. OUTPUT
VERT. OSC.
A.G.C. AFFECTS BOTH PICTURE & SOUND
SYNC. & A.G.C.
V9 6BU8
SOUND DISC.
V7 6BN6
SOUND LIM.
V6 VIDEO AMP. 6AW8A
FROM TUNER
V3 6BZ6 IST.I.F.
V4 6BZ6 2ND.I.F.
V5 6BZ6 3RD.I.F
VIDEO DET.
IN64
IN
R 47K
R 47K
OUT
680 MMF
680 MMF
680 MMF
EQUIVALENT CIRCUIT FOR A1 INTEGRATOR. SAME AS A2 EXCEPT R IS 33K.
V11A I/2 6EA8 I/2 6U8A HORIZ. CONTROL
V11B I/2 6EA8 I/2 6U8A HORIZ. OSC. & DISC.
HORIZ. OSC. CIRCUIT USED IN EARLY PRODUCTION
TEST POINTS
C- DETECTOR OUTPUT
D - VIDEO OUTPUT
E - I.F. A.G.C.
F - GROUND DURING I.F ALIGNMENT
G - 3RD I.F. GRID
H - SOUND LIMITER PLATE
J - SOUND OUTPUT
R - PLATE OF A.F.C. DIODE
NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT. NOMINAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE 20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE 20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
A ALIGNMENT POINTS
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS
CHASSIS
MOTOR PLUG
MOTOR SOCKET
CONNECTOR PLUG
TO SOUND STEP RELAY
A.C. TO SPACE COMMAND
PART OF SPACE COMMAND 5-43894 REMOTE CONTROL CHASSIS
TO SOUND LIMITER GRID
TO H.V.
TO I.F. OUTPUT ON TUNER
B+ 250 V
A.G.C.
6.3 VAC
117 V.A.C. INTERLOCK
SWITCH ON VOLUME CONTROL R12
TO 50 MMF SOUND TAKE OFF COIL
BRIGHTNESS CONTROL
CONTRAST CONTROL
VERT. SIZE CONTROL
VERT. HOLD CONTROL
A.G.C. DELAY CONTROL
5 MEG FRINGE LOCK CONTROL
VOLUME CONTROL
HORIZ. SIZE CONTROL
HORIZ. WIDTH CONTROL
VERT. LIN.
VERT. DEFL. COILS
HORIZ. DEFL. COILS
Schematic Diagram Courtesy of Zenith Radio Corp.



NOTES:

CAPACITORS - Decimal values in MF, all others in MMF unless otherwise specified.
VOLTAGES - Measured from point indicated to chassis ⏚ with a VTVM. No signal input. Tolerance +10%.
INPUT VOLTAGE - 14V DC.
TUNING RANGE - 540 KC TO 1610 KC.
IF FREQ. - 262.5 KC.

CAUTION

"A" LEAD MUST BE CONNECTED TO POSITIVE (+) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.

MOTOROLA MODEL GV-701

Schematic Diagram Courtesy of Motorola, Inc.